

Operating Instructions DVD Recorder Model No. **DMR-XS400**

DIGA
High Definition



Dear customer

Thank you for purchasing this product. For optimum performance and safety, please read these instructions carefully. Before connecting, operating or adjusting this product, please read the instructions completely. Please keep this manual for future reference.

- This DVD recorder is equipped with a Common Interface. It can receive encrypted and free-to-air DVB-S/S2 services.
- The tuner in this unit is only compatible with DVB-S/S2.



HDMI



DivXTM
HD

AVCHDTM



DVB[®]
Digital Video
Broadcasting

VIERA
Link



- DVB and the DVB logos are trademarks of the DVB Project.

■ Region management information

This unit plays DVD-Video marked with labels containing the region number "2" or "ALL".

Example:



Safety precautions

WARNING

■ Unit

- To reduce the risk of fire, electric shock or product damage,
 - Do not expose this unit to rain, moisture, dripping or splashing.
 - Do not place objects filled with liquids, such as vases, on this unit.
 - Use only the recommended accessories.
 - Do not remove covers.
 - Do not repair this unit by yourself. Refer servicing to qualified service personnel.
 - Do not let metal objects fall inside this unit.
 - Do not place heavy items on this unit.

■ AC mains lead

- To reduce the risk of fire, electric shock or product damage,
 - Ensure that the power supply voltage corresponds to the voltage printed on this unit.
 - Insert the mains plug fully into the socket outlet.
 - Do not pull, bend, or place heavy items on the lead.
 - Do not handle the plug with wet hands.
 - Hold onto the mains plug body when disconnecting the plug.
 - Do not use a damaged mains plug or socket outlet.
- Install this unit so that the AC mains lead can be unplugged from the socket outlet immediately if any problem occurs.

■ SD card

- Keep the Memory Card out of reach of children to prevent swallowing.

CAUTION

■ Unit

- This unit utilizes a laser. Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.
- Do not place sources of naked flames, such as lighted candles, on this unit.
- This unit may receive radio interference caused by mobile telephones during use. If such interference occurs, please increase separation between this unit and the mobile telephone.
- This unit is intended for use in moderate climates.

■ Placement

- Place this unit on an even surface.
- To reduce the risk of fire, electric shock or product damage,
 - Do not install or place this unit in a bookcase, built-in cabinet or in another confined space. Ensure this unit is well ventilated.
 - Do not obstruct this unit's ventilation openings with newspapers, tablecloths, curtains, and similar items.
 - Do not expose this unit to direct sunlight, high temperatures, high humidity, and excessive vibration.

■ Batteries

- Danger of explosion if battery is incorrectly replaced. Replace only with the type recommended by the manufacturer.
- Mishandling of batteries can cause electrolyte leakage and may cause a fire.
 - Do not mix old and new batteries or different types at the same time.
 - Do not heat or expose to flame.
 - Do not leave the battery(ies) in a car exposed to direct sunlight for a long period of time with doors and windows closed.
 - Do not take apart or short circuit.
 - Do not recharge alkaline or manganese batteries.
 - Do not use batteries if the covering has been peeled off.
 - Remove batteries if you do not intend to use the remote control for a long period of time. Store in a cool, dark place.
- When disposing the batteries, please contact your local authorities or dealer and ask for the correct method of disposal.



DANGER -VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN. AVOID DIRECT EXPOSURE TO BEAM. FDA 21 CFR/Class IIIb	
CAUTION -CLASS 3B VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN. AVOID EXPOSURE TO THE BEAM. IEC60825-1 -A2/Class 3B	
ATTENTION -RAYONNEMENT LASER VISIBLE ET INVISIBLE. CLASSE 3B. EN CAS D'OUVERTURE, EVITER UNE EXPOSITION AU FAISCEAU.	
FORSIGTIG -SYNLIG OG USYNLIG LASERSTRÅLING KLASSE 3B. NÅR LAGET ER ABENT, UNDGÅ AT BLIVE UDSAT FOR STRÅLEN.	
VARO -AVATTAESSA OLET ALTIINA LUOKAN 3B NÄKYVÄÄ JA NÄKYMÄTÖNTÄ LASERSÄTEILYÄ, VARO ALTISTUMISTA SÄTEELLE.	
WARNING -KLASS 3B SYNLIG OCH OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD. UNDVIK EXPOSERING FÖR STRÅLEN.	
VORSICHT -SICHTBARE UND UNSICHTBARE LASERSTRAHLUNG KLASSE 3B. WENN ABDECKUNG GEÖFFNET, NICHT DEM STRAHL AUSSETZEN.	
注意 -打开时有可见及不可见激光辐射。避免光束照射。	
注意 -ここを開くと可視及び不可視レーザー光が出ます。ビームを見たり、触れたりしないでください。 VOL1J70	

(Inside of product)

Features

■ DLNA (⇒ 74, 75)

You can enjoy the video and photos saved on the HDD of this unit on DLNA (Client) compatible equipment connected via a network. Additionally, you can enjoy viewing video, photos and music saved on a DLNA Certified media server and Panasonic DLNA compatible recorders.

■ VIERA CAST (⇒ 71)

Internet services (such as YouTube, Picasa Web Albums, etc.) can be accessed easily by using the VIERA CAST button.

■ EPG (⇒ 26, 32)

Timer recording is made easier because the TV Guide allows you to see programme information.

Supplied accessories

Please check and identify the supplied accessories.

(Product numbers correct as of May 2011. These may be subject to change.)

1 Remote control

(N2QAYB000644)

2 Batteries for remote control

1 AC mains lead

- Do not use AC mains lead with other equipment.

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■ Troubleshooting

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Troubleshooting guide

Power

Displays

TV screen and video

Sound

Operation

Recording, timer recording and copying

Play

Edit

Photo

Music

USB

TV Guide

Broadcast

VIERA Link

Network

To reset this unit

■ Reference

Unit care

Regarding DivX and MKV

Operations that can be performed simultaneously

Operations that can be performed while recording or copying a title

Starting the timer recording while executing other operation

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Getting started

Watching broadcasts

Recording

Playing back video

Editing video

Copying video

Photo

Music

With Other Equipment

Convenient functions

Troubleshooting




Reference

About descriptions in these operating instructions

• Pages to be referred to are indicated as "⇒ ○○".

HDD and media information

Recording mode

Recording Mode	DR	HG/HX/HE/HL/HM	XP/SP/LP/EP, FR (⇒ below)
Feature	Programmes can be recorded in a nearly perfect broadcasted state.	Recording can be done with reduced recording volume in HD quality.	Recording can be done with reduced recording volume in SD quality.
Quality	Quality as the broadcast	High definition*1	Standard definition
Recordable media	 HDD		 HDD  DVD
Multiple audio (audio language)	Record all multiple audio	Record only one audio	
Subtitles / Teletext	Can be recorded	Can be recorded (only one subtitle or teletext)*2	
Surround audio	Surround audio as the broadcast	Depends on the settings (⇒ 83, Audio for HG / HX / HE / HL / HM Recording)	Stereo audio

*1 The SD quality programme can not be converted to HD quality.

*2 You cannot select during play whether it appears or disappears.










➤ Recording modes and approximate recording times (⇒ 105)





FR (Flexible Recording Mode)

The unit automatically selects a recording rate between XP and EP (8 hours) that will enable the recordings to fit in the remaining disc space with the best possible recording quality.

HDD and media you can use for recording and play

(-: Impossible)

Media type	Standard symbol		Recordable contents	Playable contents
Hard disk drive (HDD)*1		HDD	●Video*2 ●AVCHD ●JPEG ●Music copied from music CD ●MP3	
DVD-Video*4  		DVD-V	-	●Movie and music ●Video in finalised disc
DVD-RAM*1 		RAM	●Video*2 ●JPEG	
			-	●AVCHD*3
DVD-R DVD-R DL  		DVD-R	●Video ●AVCHD*3	●DivX® ●MKV ●JPEG ●MP3
DVD-RW*1 		DVD-RW	●Video	●AVCHD*3
+R/+R DL		+R	●Video	●AVCHD*3
+RW*1		+RW	●Video	●AVCHD*3

Media type	Standard symbol		Recordable contents	Playable contents
Audio CD (CD-DA) 		CD	–	● Music
CD (including CD-R/RW)			–	● DivX® ● MKV ● JPEG ● MP3
SD Cards ^{※1} 		SD	● JPEG	● AVCHD ● MPEG2 ^{※5} ● JPEG
USB memories 		USB	–	● AVCHD ^{※3, 5} ● MPEG2 ^{※5} ● DivX® ● MKV ● JPEG ● MP3

※1 Rewritable media

※2 Compatible with recording copyright protected titles (**RAM** CPRM compatible disc only).

※3 This unit can playback media recorded with AVCHD compatible devices (Panasonic video camera, etc.). However, it may not be able to playback, add, or edit depending on the device that was used to record.

※4 Includes finalised DVD-R, DVD-R DL, DVD-RW, +R and +R DL.

※5 It cannot be played back directly from the media. Playback is possible by copying to the HDD.



- **+RW** 8X Speed +RW disc is not supported.
- **USB** Video images of the copyright-protected DivX contents stored on USB device can be output only through the HDMI output terminal.
- With certain recording states and folder structures, the play order may differ or playback may not be possible.

HDD and media information

Notes

The manufacturer accepts no responsibility and offers no compensation for loss of recorded or edited material due to a problem with the unit or recordable media, and accepts no responsibility and offers no compensation for any subsequent damage caused by such loss.

Examples of causes of such losses are

- A disc recorded and edited with this unit is played in a DVD Recorder or computer disc drive manufactured by another company.
- A disc used as described above and then played again in this unit.
- A disc recorded and edited with a DVD Recorder or computer disc drive manufactured by another company is played in this unit.

Notes for the disc

■ Cartridge-protection

For a DVD-RAM with a cartridge



■ Disc recorded on another device

- DVD-RW recorded in DVD Video Recording (DVD-VR) format
 - This unit can playback and copy to HDD.
 - This unit does not support editing or recording.
 - It is possible to record and edit with DVD-Video format by formatting discs with this unit.
- It may be necessary to finalize the disc or close the session on the equipment used for recording to play on this unit.
- Discs recorded on equipment other than this unit may not be used for recording on this unit.

■ Play on other players

DVD-R DVD-RW +R +RW

Finalisation is needed. (⇒ 69)

+RW

If the disc failed to play on other equipment, we recommend you create a Top Menu (⇒ 69).

■ Regarding 8 cm Disc

This unit cannot record or edit the 8 cm disc. Only playback or copy to the HDD is possible.

■ Discs that cannot be played

- Blu-ray Disc (BD-Video, BD-RE, BD-R)
- 2.6 and 5.2 GB DVD-RAM, 12 cm
- DVD-Audio
- HD DVD
- WMA discs, DivX Plus HD discs
- Super Video CD, Super Audio CD, Video CD
- +R (8 cm), CD-ROM, Photo CD, PD, etc.



- The producer of the disc can control how discs are played. So you may not always be able to control play as described in these operating instructions. Read the disc's instructions carefully.
- Operation and sound quality of CDs that do not conform to CD-DA specifications (copy control CDs, etc.) cannot be guaranteed.

Notes for the USB devices

- This unit does not guarantee connection with all USB devices.
- FAT16 and FAT32 file systems are supported.
- This unit supports USB 2.0 High Speed.
- Although this unit can use USB 3.0 devices as USB 2.0 devices, in certain cases USB 3.0 devices cannot be used due to differing connector shape, larger current ratings, etc. (Use of USB 2.0 devices is recommended.)



- This unit's USB port does not support bus-powered USB device.
- USB memories support DivX and MKV files less than 4 GB.

Notes for the SD cards

Compatible SD card

- SD Memory Card (from 8 MB to 2 GB)
- SDHC Memory Card (from 4 GB to 32 GB)
- SDXC Memory Card (48 GB, 64 GB)
- This unit is compatible with SD Memory Cards that meet SD Card Specifications FAT12 and FAT16 formats, as well as SDHC Memory Cards in FAT32 format and SDXC Memory Cards in exFAT format.

Setting the protection

Switch the write-protect switch to the "LOCK" position.



Using miniSD card or microSD card

Mini-type and micro-type cards can also be used, but must be used with e.g., adaptor cards. These are usually supplied with such cards, or otherwise customer provided.



- Useable memory is slightly less than the card capacity.
- If the SD card is formatted on other equipment, the time necessary for recording may be longer. Also, if the SD card is formatted on a PC, you may not be able to use it on this unit. In these cases, format the card on this unit (⇒ 68).
- SDHC Memory Cards and SDXC Memory Cards can be used in equipment that is compatible with the appropriate cards. (SDHC Memory Cards can also be used in equipment compatible with SDXC Memory Cards)

Using either of these cards in a non-compatible PC or non-compatible equipment may result in formatting etc. and the loss of recorded content.

Media handling

How to hold a disc or SD card

Do not touch the recorded surface or the terminal surface.



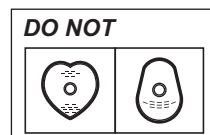
If there is dirt or condensation on the disc

Wipe with a damp cloth and then wipe dry.



Handling precautions

- Do not attach labels or stickers to discs.
- Do not use record cleaning sprays, benzine, thinner, static electricity prevention liquids or any other solvent.
- Do not use ballpoint pens or other hard writing implements, when writing on the label side of the disc.
- Do not expose the terminals of the SD card to water, garbage or other strange things.
- Do not drop stack, or impact discs. Do not place objects on them.
- Do not use the following discs:
 - Discs with exposed adhesive from removed stickers or labels (rental discs, etc.).
 - Discs that are badly warped or cracked.
 - Irregularly shaped discs, such as heart shapes.



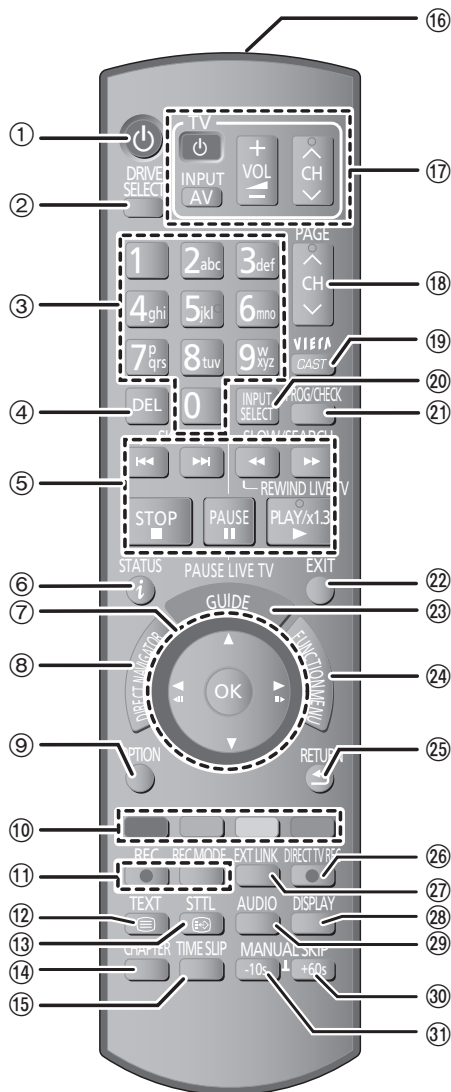
- Do not place in the following areas:
 - In direct sunlight.
 - In very dusty or humid areas.
 - Near a heater.
 - Locations susceptible to significant difference in temperature (condensation can occur).
 - Where static electricity or electromagnetic waves occur.

Control reference guide

Instructions for operations are generally described using the remote control.

■ Remote control

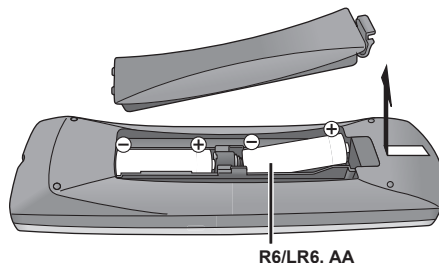
- ① Turn the unit on or off (⇒ 18, 20)
- ② Select drive (HDD, DVD, SD or USB) (⇒ 18)
- ③ Select channels and title numbers, etc./Enter numbers or characters
(The character buttons may be used when operating VIERA CAST contents.)
- ④ To delete unwanted recorded titles, timer programmes, photos or music (⇒ 43)
- ⑤ Basic operations for recording and play
- ⑥ Programme information within TV Guide screen (⇒ 26)/
Show channel information (⇒ 25)/
Show Information (⇒ 39)/Show status messages (⇒ 41)
- ⑦ Selection/OK (⇒ 19), Frame-by-frame (⇒ 42)
- ⑧ Show DIRECT NAVIGATOR, Top Menu (⇒ 36, 38)
- ⑨ Show OPTION menu (⇒ 44, 58, 65)
- ⑩ Colour buttons
Use in accordance with instruction on the screen.
- ⑪ Recording functions (⇒ 28)
- ⑫ Show Teletext (⇒ 25)
- ⑬ Show subtitles (⇒ 25)
- ⑭ Create chapter (⇒ 40)
- ⑮ Skip the specified time (⇒ 42)
- ⑯ Transmit the remote control signal
●Point it at remote control signal sensor on this unit. (⇒ 11)
- ⑰ TV operation area (⇒ 90)
- ⑱ Channel select (⇒ 24)/
Change pages in the DIRECT NAVIGATOR screen etc. (⇒ 38)
- ⑲ Show VIERA CAST (⇒ 71)
- ⑳ Input select (⇒ 24, 28, 66)
- ㉑ Timer Recording screen (⇒ 33)
- ㉒ Exit the menu screen
- ㉓ Show the TV Guide screen (⇒ 26)
- ㉔ Show FUNCTION MENU screen (⇒ 19)
- ㉕ Return to previous screen
- ㉖ Direct TV Recording (⇒ 30)
- ㉗ EXT LINK function (⇒ 66)
- ㉘ Show Playback menu (⇒ 76)
- ㉙ Select audio (⇒ 25, 42)
- ㉚ Skip approx. 1 minute forward (⇒ 41)
- ㉛ Skip approx. 10 seconds backward (⇒ 41)



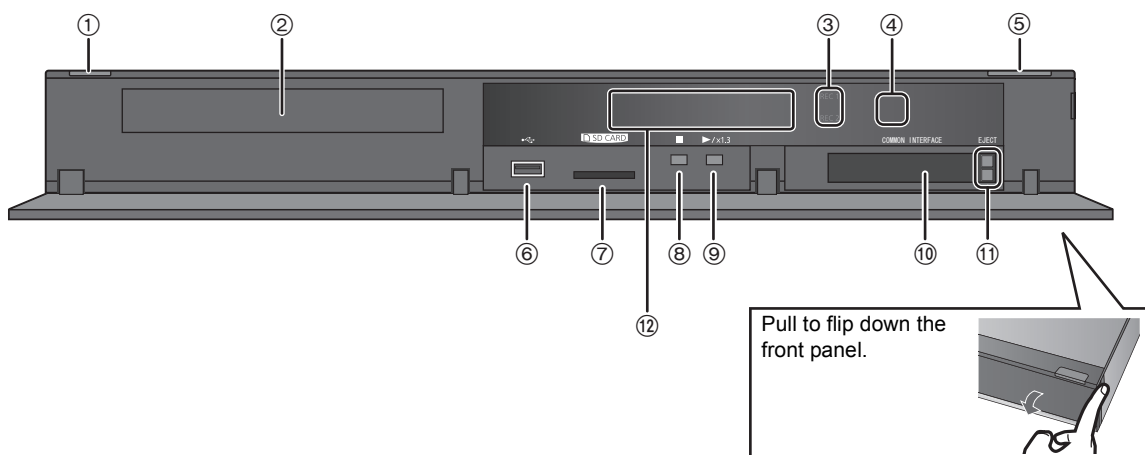
Insert batteries

Insert so the poles (+ and -) match those in the remote control.

- Use alkaline or manganese batteries.



■ Main unit



① Standby/on switch (⏻/⏻) (⇒ 18, 20)

Press to switch the unit from on to standby mode or vice versa. In standby mode, the unit is still consuming a small amount of power.

② Disc tray (⇒ 18)

③ Recording indicator

- The indicator will light up while recording.
- The indicator will blink while recording is paused.

④ Remote control signal sensor

- Angle: Approx. 20° up and down, 30° left and right
- Distance: Within approx. 7 m in front of the unit

⑤ Open/close disc tray (⇒ 18)

⑥ USB port (⇒ 18)

⑦ SD card slot (⇒ 18)

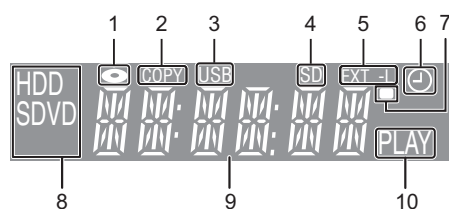
⑧ Stop

⑨ Start play

⑩ CI (Common Interface) slot

⑪ CI module eject button

⑫ Display



1 Disc indicator

2 Copying indicator (⇒ 46)

3 USB port indicator

4 SD card slot indicator

5 EXT LINK indicator

6 Timer recording indicator

This indicator lights up when the timer recording standby is activated.

7 Remote control signal indicator

8 Drive (HDD, DVD or SD) indicator

9 Main display section indicator

Current time/playback counter, various messages

10 Playback indicator

➤ Rear panel terminals (⇒ 14)

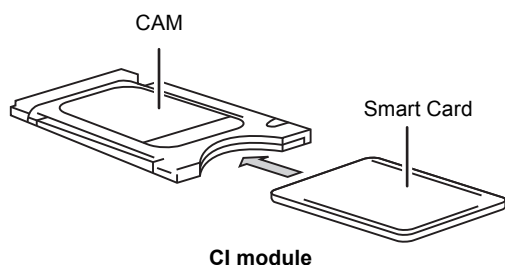
CI module

An appropriate CI module is required to view or record the encrypted broadcast.

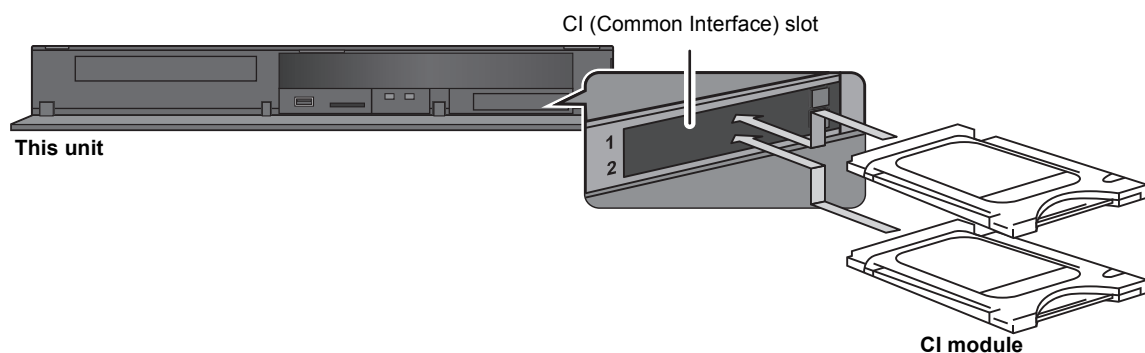
You need a CI module, CAM (Conditional Access Module) together with a certified Smart Card, and a subscription with the corresponding broadcaster.

- If not viewing/recording an encrypted broadcast, you do not need to insert the CI module.

1 Insert the certified Smart Card into the CAM (both optional).



2 Insert the CI module into the CI (Common Interface) slot of this unit.



TV service encryption is automatically cancelled and the service can be viewed or recorded. (The recording might be prohibited by broadcasters.)

- Depending on the CI module, a PIN may be demanded. If prompted to enter a PIN code, enter the set PIN code with the number buttons.

➤ Notes for recording of an encrypted broadcast (⇒ 31)



- You can insert one or two different CAMs with Smart Cards into this unit.
- Be sure to insert the CI module horizontally into the slot.
- Insert the CAM and the Smart Card with the correct direction.
- When removing the CI module, press the CI module eject button and pull it straight out.
- For more details, see the manual of the CAM and Smart Card, or consult the dealer.
- The Common Interface supports the modules according to DVB Specification and CI Plus Specification.
- Turn off the unit before you insert or remove the CI module.


About CI Plus compatible broadcast

"CI Plus" is a technical specification that imposes copy protection on the broadcasted programmes.

- **All CI Plus protected programmes are encrypted.**
It may take some time to display the encrypted programme.

■ Retention limit

There are some titles for which the playback is disabled after a predetermined time.
(e.g., Permitted playback period is 90 minutes after recording.)

- When the programme is imposed a limit on the playable period, the  icon will appear on the DIRECT NAVIGATOR screen after recording. (⇒ 38)
- These titles cannot be copied to the disc. (⇒ below, Copying is prohibited)

■ CI Plus copy protection

When the CI Plus compatible broadcast is recorded, the title may be copy protected.

- There are following types of the copy protection depending on the broadcast:

Copying not restricted

- Depending on the programme, you can copy only to DVD-RAM (CPRM compatible discs only).

One generation copy is permitted

- You can copy to DVD-RAM (CPRM compatible discs only) only once.
However, the original title will be deleted.
- You cannot copy from the copied DVD-RAM (CPRM compatible discs) to HDD or another disc.

Copying is prohibited

- You cannot copy to the disc.

For details, refer to your CAM's operating instructions or consult your dealer.

Connection

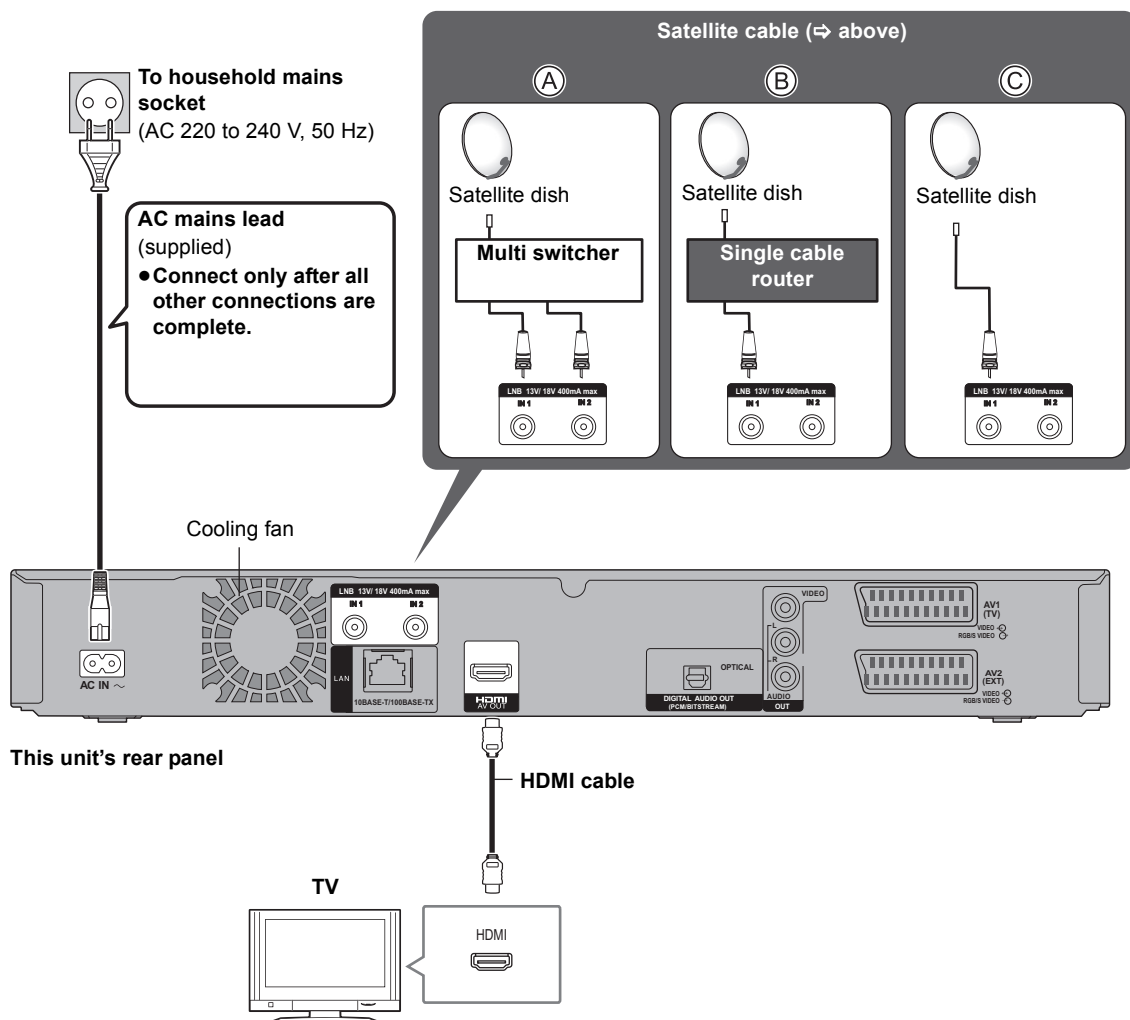
Basic connections

When connected to an HDMI compatible unit, you can enjoy high quality, digital video and audio.

- Before connection, turn off all equipment and read the appropriate operating instructions.

■ Satellite cable

- To record 2 programmes simultaneously or view TV during recording
 - Ⓐ Connect both LNB IN 1 and LNB IN 2 to the satellite dish.
 - Ⓑ When using Single cable router, connect satellite cable to LNB IN 1 terminal and activate two user bands. (⇒ 23)
- When you use only one satellite cable
 - Ⓒ Connect LNB IN 1 terminal. (2 programmes simultaneous recording and viewing TV during recording are impossible)



Required setting:

Set "HDMI Audio Output" to "On" (⇒ 85).
(The default setting is "On".)

- If the TV does not have the HDMI terminal, connect the TV with the 21-pin Scart cable or Audio/Video cable (⇒ 16)



- Supply power from another device when you use 2 or more devices to receive satellite broadcast, because this unit does not supply power when it is turned in standby.

When the unit is not to be used for a long time

To save power, unplug it from the household mains socket. This unit consumes a small amount of power, even when it is turned off

[approx. 0.2 W ("Power Save in Standby" is activated)]

About HDMI cable

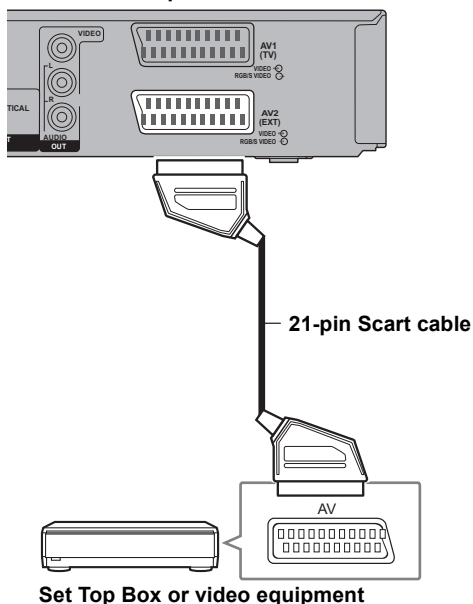
- Please use High Speed HDMI Cables that have the HDMI logo (as shown on the cover).
- When outputting 1080p signal, please use HDMI Cables 5.0 meters or less.
- Recommended Panasonic HDMI cable part number: RP-CDHS15 (1.5 m), RP-CDHS30 (3.0 m), RP-CDHS50 (5.0 m), etc.



- The HDMI connection supports VIERA Link "HDAVI Control" (⇒ 72). However, to perform PAUSE LIVE TV (⇒ 27) and Direct TV Recording (⇒ 30) for programmes that cannot be received by this unit, you need to connect a 21-pin Scart cable (⇒ 16).
- You cannot connect this unit to DVI devices that are incompatible with HDCP. Depending on the device, images may not display properly or at all when connecting with a DVI/HDMI switching cable. (Audio cannot be output.)
- If you are connecting to a TV that is only compatible with 2 channel audio output, audio with 3 channels or more will be down mixed (⇒ 108) and output as 2 channels, even if connecting with an HDMI cable. (Some discs cannot be down mixed.)

Connect the Set Top Box or video equipment

This unit's rear panel



- A 21-pin adaptor is required for AUDIO/VIDEO terminal.

Connection

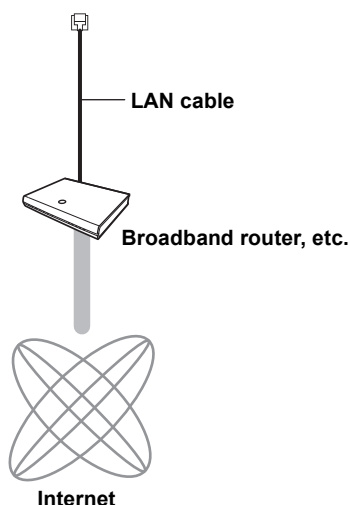
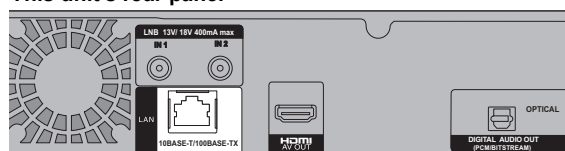
Network connection

Following functions will be available when this unit is connected to the network.

- DLNA functions (⇒ 74, 75)
- Network Service functions (⇒ 71)
- Automatically acquiring the title of the CD (⇒ 62)
- Updating the software (firmware) of this unit from Internet (⇒ 89)

For details about connection method, refer to the instructions supplied with the connected equipment.

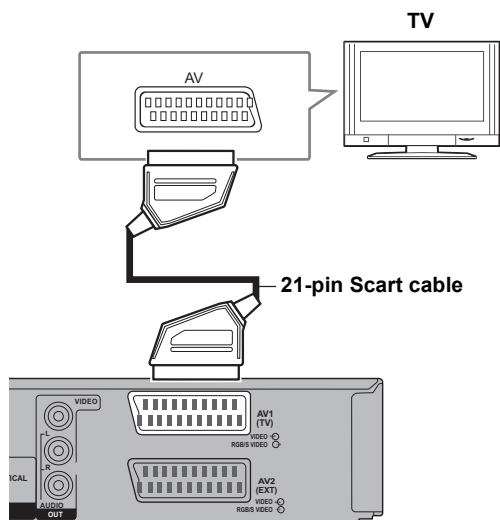
This unit's rear panel



- Use category 5 or above straight LAN cables (STP) when connecting to peripheral devices.
- Inserting any cable other than a LAN cable in the LAN terminal can damage the unit.

Other TV connections

21-pin Scart terminal



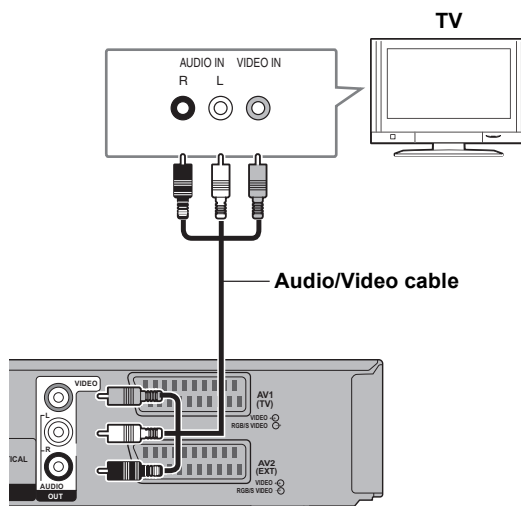
This unit's rear panel



- Set according to the connected TV. (⇒ 85, AV1 Output)
- The 21-pin Scart cable connection with the Q Link compatible TV supports "Q Link" (⇒ 72).

AUDIO/VIDEO terminals

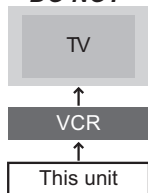
- Connect to terminals of the same colour.



This unit's rear panel

■ Connect the unit directly to the TV

DO NOT



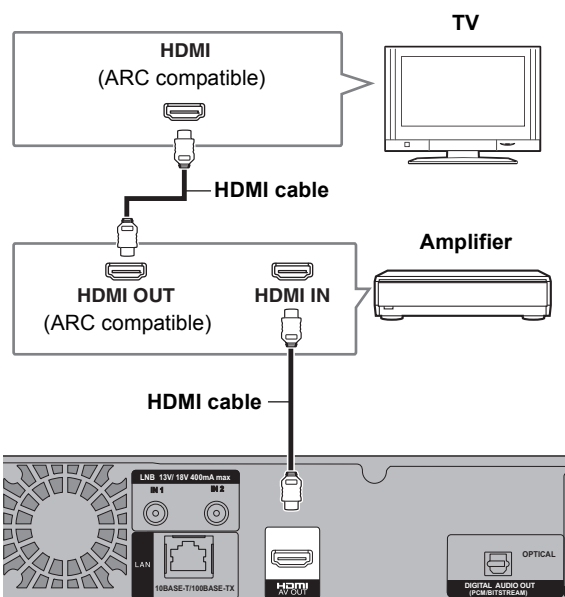
If you connect the unit through an AV selector or VCR to the TV, video signal will be affected by copy protection systems and the picture may not be shown correctly.

● When connecting to a TV with a built-in VCR

Connect to the input terminals on the TV side if there are both TV and VCR input terminals.

Amplifier connections

When using HDMI AV OUT terminal



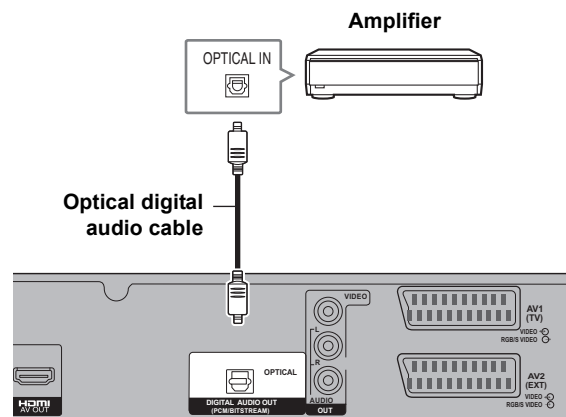
This unit's rear panel



- Linked operation is possible by connecting to a TV or amplifier compatible with VIERA Link.
- When using a TV or an amplifier that does not display "ARC compatible" on the HDMI terminal (not compatible with ARC), it is necessary to connect the TV and the amplifier with a digital audio cable to enjoy the TV audio on the amplifier.

When using DIGITAL AUDIO OUT terminal

■ Using Optical digital audio cable



This unit's rear panel



- When connecting a TV with an HDMI terminal, set "HDMI Audio Output" to "Off" (⇒ 85).
- When you use the optical digital audio cable, insert the tip correctly into the terminal.

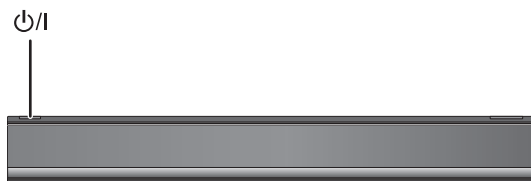
Common Operations



Preparations

Turning on this unit

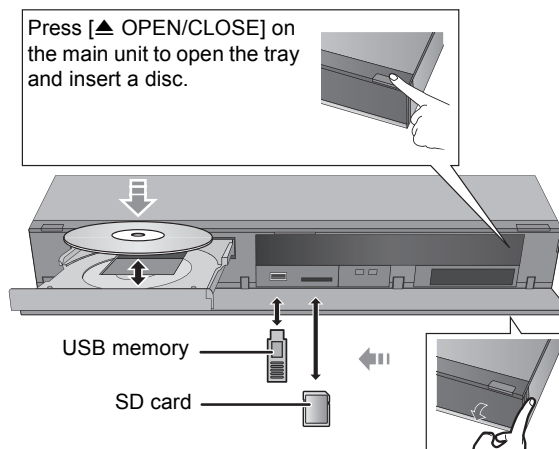
- ① Turn on the TV, then select the appropriate AV input to suit the connections to this unit.
- ② Press [⏻] on the remote control or [⏻/I] on this unit.



The Easy Setting will start at the initial power on after purchasing this unit. (⇒ 20)

Inserting or removing a media

Press [▲ OPEN/CLOSE] on the main unit to open the tray and insert a disc.



- When the indicator on this unit's display blinks, do not turn off the unit or remove the media. Such action may result in loss of the media contents.
- When inserting the media, ensure that it is facing the right way up.
- Wipe off the dust or fingerprints from the discs before use. (⇒ 9)
- Return discs to their cases or cartridges after use; this helps to protect the discs against scratches and dust.
- When removing the SD card, press on the centre of the card and pull it straight out.
- If you connect a Panasonic product with a USB connection cable, setup screen may be displayed on the connected equipment. For details, refer to the instructions for the connected equipment.

■ To select a drive

Press [DRIVE SELECT] to select the media drive that you operate.

■ Release disc protection

RAM

If the disc is protected when writing to the disc, release the protection (⇒ 8, Cartridge-protection, ⇒ 68, Setting the protection).

HOLD function

The HOLD function deactivates all buttons on the unit and remote control.

Press and hold [OK] and [RETURN ↵] simultaneously until "X HOLD" appears on the unit's display.



Unit's display

To cancel the HOLD function

Press and hold [OK] and [RETURN ↵] simultaneously until "X HOLD" disappears.

Basic operation

This unit is basically operated via the following method by using the remote control.

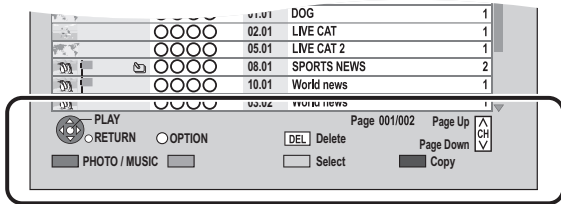
To select and enter



To return to the previous screen	Press RETURN
To exit the screen	Press EXIT

Display navigation

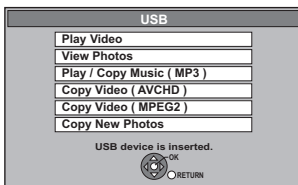
Operating method can also be confirmed on the screen.
Available functions and buttons used are displayed on each screen.



Menu screen

Selecting screen for each operation is displayed when the media is inserted, and you can access the operation screen easily.

e.g., **USB**



- Display items differ depending on what is recorded in each media.

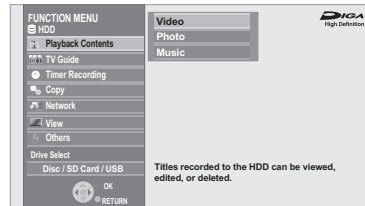
If the menu screen is not displayed, display it by performing the following operation.

- 1 While stopped
Press **[OPTION]**.
- 2 Select “Drive Select”, then press **[OK]**.
- 3 Select the media, then press **[OK]**.
• Menu screen for each media appears.

FUNCTION MENU screen

You can easily access the desired functions via the FUNCTION MENU.

- 1 Press **[FUNCTION MENU]**.
- 2 Select the item, then press **[OK]**.
• Repeat step 2 if necessary.



Playback Contents

Video (⇒ 37)

Photo (⇒ 56)

Music (⇒ 62)

TV Guide (⇒ 26, 32)

Timer Recording (⇒ 33)

Copy

Copy Video (⇒ 50)

Copy Video (AVCHD) to DVD-R (⇒ 54)

Network

Home Network (DLNA) (⇒ 75)

Internet Content (⇒ 71)

View (⇒ 24)

- “View” is displayed when this unit is connected with the TV that supports “HDAVI Control 2” or later. (⇒ 72)

Others

Ext Link Standby (⇒ 66)

Flexible Recording via AV input (⇒ 66)

Setup (⇒ 78)

Drive Select

Disc / SD Card / USB



- Selectable items will change depending on the type and status of the media.

Settings

Getting started

Easy Setting

- 1 Turn on the TV, then select the appropriate AV input to suit the connections to this unit.
- 2 Press [⏻] to turn the unit on. (⇒ 18)
- 3 Select the language.

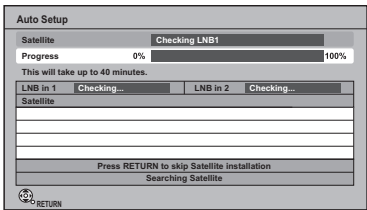
- When using a Single cable router
 - ① Press [RETURN ↵] after selecting the language.
 - ② Go to page 23, step 1.

- 4 Follow the on-screen instructions and make the following settings.

- Country
- Number of cables to connect
- Search mode

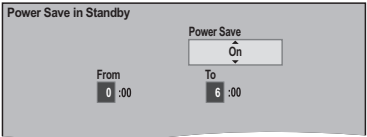
Auto Setup starts.

These operations (Searching Satellite and Searching Channels) may take some time.



After tuning has been completed, clock will be set automatically.
If the clock setting screen appears, set the time manually (⇒ 87, Clock).

- 5 Set “Power Save” to “On”, “On Timer” or “Off”, then press [OK].



On	It will go into the Power Save in Standby mode.
On Timer	Set the start and stop time and then press [OK]. <ul style="list-style-type: none">● “Power Save in Standby” is activated when the set time comes.
Off	It is possible to start quickly from the standby mode. (Quick Start mode) <ul style="list-style-type: none">● If you use Home Network (DLNA) Server function (⇒ 86), select “Off”. This function is not available with other settings.

When “Easy Setting has been completed.” appears, Easy Setting is complete.

To stop partway

Press [RETURN ↵].

To restart set up

- 1 Press [FUNCTION MENU].
- 2 Select “Setup” in “Others”, then press [OK].
- 3 Select “Auto Setup” in “DVB Tuning”, then press [OK].

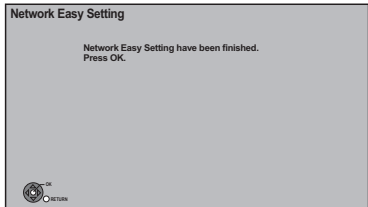
- If the TV aspect setting screen appears (⇒ 84, TV Aspect)
- To confirm that channels have been tuned correctly (⇒ 24, Using Channel List)

Network Easy Setting

After completing "Easy Setting", you can continue with "Network Easy Setting".

① Follow the on-screen instructions and make the following settings.

- Network Easy Setting (Home Network Connection Check)
- Home Network (DLNA) Server function
- Network Easy Setting (Internet Connection Test)



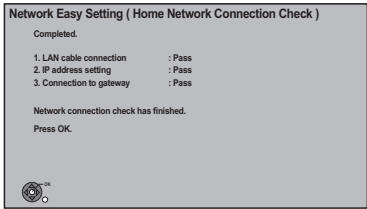
This screen appears, Setup is complete.

② Press [OK].

When you experience problems with settings

■ Network Easy Setting (Home Network Connection Check)

- If there is no problem, the following screen is displayed.



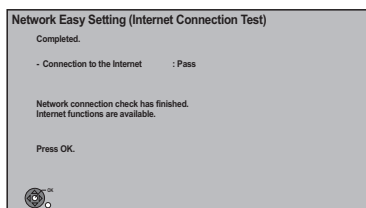
- If there is any problem, the following message is displayed on the screen.

Display		Check the following
1. LAN cable connection:	"Fail"	● Connection of the LAN cables (⇒ 16) ● Settings of the hub and router
2. IP address setting:	"Fail"	
3. Connection to gateway:	"Fail"	
1. LAN cable connection:	"Pass"	● Connection and settings of the hub and router ● Settings of "IP Address / DNS Settings" (⇒ 85)
2. IP address setting:	"Fail"	
3. Connection to gateway:	"Fail"	
1. LAN cable connection:	"Pass"	
2. IP address setting:	"Pass"	
3. Connection to gateway:	"Fail"	
1. LAN cable connection:	"Pass"	
2. IP address setting:	"Home network available"	
3. Connection to gateway:	"Fail"	

Settings

■ Network Easy Setting (Internet Connection Test)

- If there is no problem, the following screen is displayed.



- If there is any problem, the following message is displayed on the screen.

Display	Check the following
Cannot find the server. (B019)	<ul style="list-style-type: none"> ● "Primary DNS" and "Secondary DNS" settings of "IP Address / DNS Settings" (⇒ 85)
No connection could be made to the server. (B020)	<ul style="list-style-type: none"> ● The server may be busy or the service may have been suspended. Please wait a few moments, and then try again. ● Settings of "Proxy Server Settings" (⇒ 85) and the router



- Refer to the operating instructions of the hub or router.
- Home Network (DLNA) Server function setting can be set only when you selected "Off" for "Power Save in Standby" in "Easy Setting". (⇒ 20, step 5)
- Even if you set "Home Network (DLNA) Server function" to "Off", it is possible to set to "On" later. (⇒ 86)
- You can perform this setup anytime by selecting "Network Easy Setting" in the Setup menu. (⇒ 85)
- You can redo these settings individually using "Network Settings". (⇒ 85)

To restart Network Easy Setting

- 1 Press [FUNCTION MENU].
- 2 Select "Setup" in "Others", then press [OK].
- 3 Select "Network Easy Setting" in "Network", then press [OK].

To redo settings individually

- 1 Press [FUNCTION MENU].
- 2 Select "Setup" in "Others", then press [OK].
- 3 Select "Network Settings" in "Network", then press [OK].
- 4 Select "IP Address / DNS Settings" (⇒ 85) or "Proxy Server Settings" (⇒ 85), then press [OK].

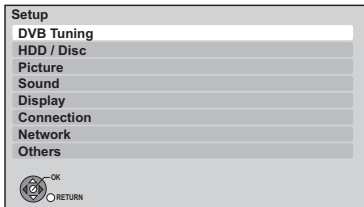
Check security before using Home Network (DLNA) Server function

If you set "Home Network (DLNA) Server function" to "On", all connected devices on the same network can access this unit. Ensure that the router for your home network has adequate security system to prevent unauthorized access.

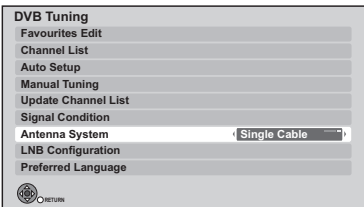
Auto Setup method when using a single cable router

When a single cable router is used, it is necessary to change the settings of this unit and then run Auto Setup.

- 1 Press [FUNCTION MENU].
- 2 Select "Setup" in "Others", then press [OK].



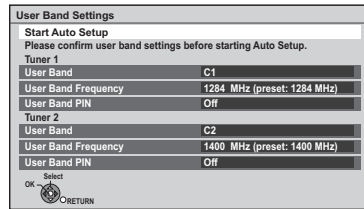
- 3 Select "Antenna System" in "DVB Tuning".
- 4 Press [◀, ▶] to select "Single Cable".



- 5 Press [▲, ▼] to select "Auto Setup", then press [OK].

- ① Select "Yes", then press [OK].
- ② Select the country, then press [OK].

- 6 Make the settings of user band.



User Band	You can set C1 to C8. Set to a User Band not used by any other device. ● When only one User Band of the Router is assigned, set "Tuner 2" side to "Off". Note that you will not be able to record 2 programmes simultaneously or watch TV during recording.
User Band Frequency	Set the User Band Frequency with number buttons.
User Band PIN	If the single cable router requires a PIN to access an user band, enter the PIN.

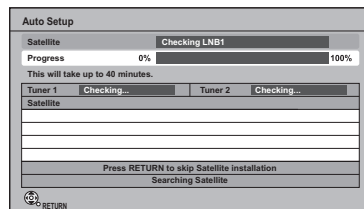
- For details, read the manual of the single cable router, etc.

- 7 Select "Start Auto Setup", then press [OK].

- 8 Select the search mode, then press [OK].

Auto Setup starts.

These operations (Searching Satellite and Searching Channels) may take some time.



After tuning has been completed, clock will be set automatically.

If the clock setting screen appears, set the time manually (⇒ 87, Clock).

To set Power Save settings

- 1 Press [FUNCTION MENU].
- 2 Select "Setup" in "Others", then press [OK].
- 3 Select "Standby Settings" in "Others", then press [OK].
- 4 Select "Power Save in Standby", then press [OK].
- 5 Refer to page 20, step 5.

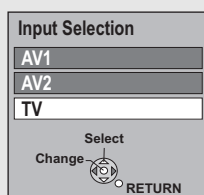
To start Network Easy Setting

- 1 Press [FUNCTION MENU].
- 2 Select "Setup" in "Others", then press [OK].
- 3 Select "Network Easy Setting" in "Network", then press [OK].
- 4 Refer to page 21.

Watching broadcasts



1 Press [INPUT SELECT] and select "TV", then press [OK].



2 Press [CH ^ v] to select the channel.

Everytime you change the channel, channel information appears automatically.

Unit's display;



- You can also select the channel with the number buttons.

If encrypted channels do not appear

To watch an encrypted broadcast, insert the CI module into the CI slot. (⇒ 12)

- Depending on the CI module, a PIN may be demanded. If prompted to enter a PIN code, enter the set PIN code with the number buttons.
- Set according to the CI module. (⇒ 85, Common Interface)



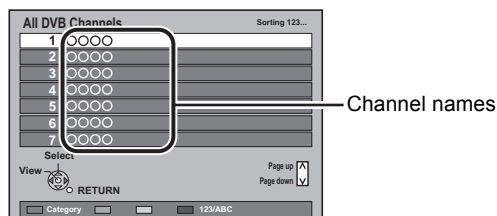
- The length of time the channel information is displayed can be changed. (⇒ 84, On-Screen Information)
- Depending on the settings of "Recording for Encrypted Channel" (⇒ 81), it may not be possible to view certain programmes. (⇒ 31, Notes for recording of an encrypted broadcast)

Using Channel List

You can select from the list of channel names.

After performing step 1 (⇒ left)

1 Press [OK].



- To change the category, press the "Red" button.
- To sort the channel, press the "Blue" button.

2 Select the channel, then press [OK].

To skip unwanted channels

The channel is skipped next time you select the channel.

- 1 While watching the broadcast to skip, press [DEL].
- 2 Press [OK].



- You can also select the skipped channel with the number buttons.
- When you want to restore the skipped channel, edit the Channel List. (⇒ 79)

➤ To edit the Channel List (⇒ 79, Channel List)

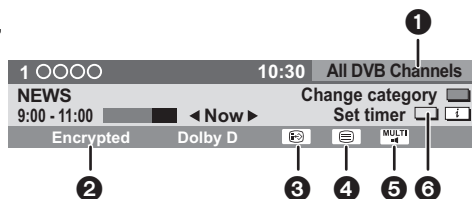


- Selection of channel is made easy by creating a Favourite of the channels. (⇒ 78, Favourites Edit)

Channel information

Press [STATUS ].

e.g.,



- ❶ Current Category
- ❷ Encrypted broadcast
- ❸ Subtitle
- ❹ Teletext
- ❺ Multiple audio/Sub Channel
- ❻ Set timer (⇒ 34)

To show detailed information

Press [STATUS ] again.

To hide the information screen

Press [EXIT].

To change Category

Press the "Blue" button.

● Register your favourite channels

- 1 Press [OPTION].
- 2 Select "Digital TV Menu", then press [OK].
- 3 Select "Favourites Edit", then press [OK].
- 4 Refer to page 78 (Favourites Edit).

To switch between the current programme and the next programme

Press [◀, ▶].

To switch to another channel

Press [▲, ▼], then press [OK].

Operations while watching broadcast

To show subtitle

When "" appears in channel information (⇒ left)

Press [STTL ].

To hide subtitle

Press [STTL ].

To change subtitle language

- 1 Press [OPTION].
- 2 Select "Subtitle Language" in "Digital TV Menu", then press [OK].
- 3 Select the desired language.
 - Press [EXIT] to exit the screen.



- Some subtitle content is displayed using Teletext. (⇒ below)

Switching audio

Press [AUDIO].

- Audio will switch according to the contents of the programme every time it is pressed.

To show Teletext

When "" appears in channel information (⇒ left)

Press [TEXT ].

To select the page or access to certain topic areas and navigation

- Use [▲, ▼, ▶, ▶], number buttons or colour buttons, etc. according to on-screen instructions.



- Some functions of Teletext are deactivated during recording.
- You can change the display mode (⇒ 84, Teletext).

Aspect

You can switch the screen mode. (⇒ 90)

Watching broadcasts

To select content in the broadcast

When a programme includes audio signals and subtitle etc., you can select signals.

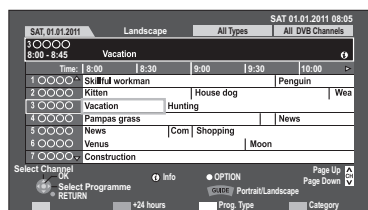
- ① Press [OPTION].
- ② Select “Digital TV Menu”, then press [OK].
- ③ Select “Multi Audio”, “Sub Channel” or “Subtitle Language”, then press [OK].
- ④ Select the item.

Using TV Guide system

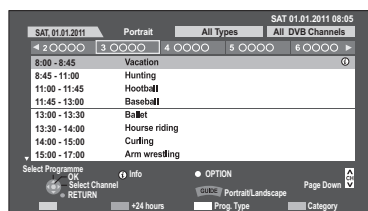
1 Press [GUIDE].

Each press switches the appearance.

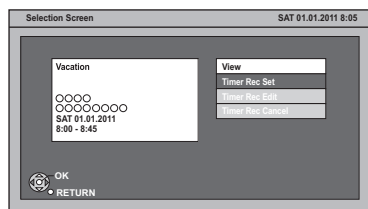
Landscape view



Portrait view



2 Select the programme, then press [OK].



3 Select “View”, then press [OK].

Page up/down

Press [CH ^ v].

To view a programme list for another day

Press the “Red” button (Previous) or the “Green” button (Next).

➤ Timer Recording using the TV Guide System (⇒ 32)



- Selection of channel is made easy by creating a Favourite of the channels you watch often. (⇒ 78, Favourites Edit)
- Some broadcast may not send programme information.

To see programme information

(Programmes with the ⓘ symbol)

While displaying TV Guide screen

Press [STATUS ⓘ].

Additional information is available for these programmes.

REWIND LIVE TV/PAUSE LIVE TV

This unit temporarily saves a live TV programme you are watching with this unit's tuner on HDD and you can use the following functions.

■ REWIND LIVE TV

You can rewind live TV programme up to 1.5 hours before as long as temporary save has not been stopped.

■ PAUSE LIVE TV

You can pause live TV programme and restart watching from the paused position.

- PAUSE LIVE TV also works when watching a programme via external input.

Select the HDD drive to perform these functions correctly.

1 While watching TV

REWIND LIVE TV

Press [SLOW/SEARCH ◀◀] to rewind.

- "REWIND LIVE TV" appears on the unit's display.

PAUSE LIVE TV

Press [PAUSE ||] to pause.

- "PAUSE LIVE TV" appears on the unit's display.



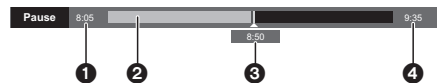
2 When you want to resume

Press [PLAY/×1.3 ▶].

- You can perform search or Quick View, etc.
- If temporary save stops (⇒ right), playback will be performed by that point.

Display information

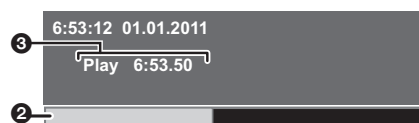
- While pausing or rewinding a broadcast:
Press [STATUS ⓘ].



- Press [STATUS ⓘ] again.



- While pausing a programme via external input:
Press [STATUS ⓘ].



- 1 The time that you can rewind the live programme.
- 2 The amount of time temporarily saved on HDD (maximum: 1.5 hours).
- 3 The time of the current playback position.
- 4 The time which is 1.5 hours after PAUSE LIVE TV or REWIND LIVE TV started.
 - After 1.5 hours from PAUSE LIVE TV or REWIND LIVE TV started, current time is displayed.

To stop REWIND LIVE TV or PAUSE LIVE TV

- 1 Press [STOP ■].
- 2 Select "Yes", then press [OK].

To hide the display information

Press [EXIT].



- Temporary save stops in the following cases:
 - When switching to other channels or other screen
 - When recording of the watching programme is started
 - When timer recording is started
 - When performing PAUSE LIVE TV or REWIND LIVE TV for more than 8 hours (This may vary depending on the HDD free space.)
- These functions do not work in the following cases:
 - When the clock is not set
 - When set clock manually (Copy protected title (Copying is prohibited) only) (⇒ 13)
 - While recording 2 programmes simultaneously
 - While copying
 - While watching a programme being recorded
 - When a radio programme is selected
 - While watching an encrypted programme
 - **REWIND LIVE TV** When "REWIND LIVE TV" is set to "Off" (⇒ 81)
 - **PAUSE LIVE TV** When a timer recording via external input is started while watching a programme via external input
- **PAUSE LIVE TV** You can operate this unit with the TV remote control by using VIERA Link (⇒ 72). Refer to the TV operating instructions for operation.
- **PAUSE LIVE TV** When you connect the TV with a HDMI cable and a 21-pin Scart cable, it is possible to pause programmes that cannot be received with the tuner of this unit (⇒ 16).

Recording TV programmes

This operation will only record to HDD.

- About CI Plus restriction (⇒ 13)
- Notes for recording of an encrypted broadcast (⇒ 31)



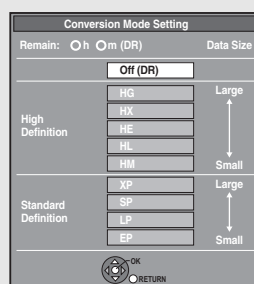
1 Press [INPUT SELECT] and select “TV”, then press [OK].

2 Press [CH \wedge \vee] to select the channel.

- You can also select the channel with the number buttons or Channel List (⇒ 24).

3 Press [REC MODE] and select the conversion mode, then press [OK].

- This unit will record the programmes in DR mode once, and then automatically convert to the selected recording mode while this unit is in standby.
 - Recording mode (⇒ 6)
 - Recording modes and approximate recording times (⇒ 105)



- The recorded title will be kept in DR mode without any conversion when “Off (DR)” is selected.
- The conversion mode set here is inherited as an initial value for the next recording or timer recording.
- If the confirmation message appears Press [OK].

4 Press [REC ●].

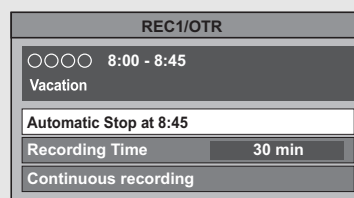
Recording starts.

“REC1” or “REC2” will light



5 Select the “Automatic Stop”, then press [OK].

- **One touch recording (OTR)**
Recording stops automatically when the programme ends.



- You can also select “Recording Time” or “Continuous recording”. (⇒ 29)

To set the recording time

- 1 Select "Recording Time" or "Continuous recording" in step ⑤ on page 28.

Recording Time	You can set the length of recording time from 30 minutes to 4 hours. Select the recording time. ● You can also set the time with [REC ●].
Continuous recording	The recording is continued until you press [STOP ■].

- 2 Press [OK].

- **Notes for recording of an encrypted broadcast (⇒ 31)**
- **To convert the recording mode after recording in DR mode (⇒ 46)**



- One recording will terminate when simultaneous recording is being done and timer recording starts.
- When "Automatic Standby after OTR" is set to "On" (⇒ 87), this unit is turned to standby mode if this unit is not operated for approximately 5 minutes after completing "Automatic Stop" or "Recording Time".
- The SD quality programme can not be converted to HD quality.

■ Recording mode conversion

Conversion will be performed after the unit is turned off. It will take about the same time as the recorded duration.

- **To confirm whether the conversion is completed (⇒ 46)**
- **To cancel a conversion (⇒ 46, To cancel a "During standby" conversion)**



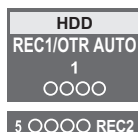
- When a programme is recorded in encrypted form, conversion will not start until decryption has finished. (⇒ 31)
- The title before conversion (the title recorded in DR mode) will be deleted once the conversion is completed.
- When the HDD does not have enough remaining space, conversion will not start.
- This function is stopped when this unit is turned on. Conversion will start from the beginning again once the unit is turned off.
- The conversion will not start if the timer recording is scheduled within the time required for the conversion.
- When converted, audio track, multi channel audio, audio language and subtitle will be converted with the same settings as at the start of recording.
- Teletext will not be recorded.

Operation during Recording

To check the recording programme

Press [STATUS ⓘ].

e.g., While recording 2 programmes simultaneously



Recording programme displayed on the TV

Recording programme not displayed on the TV

To switch the Channel

Press [CH ^ v].

To switch the Input

Press [INPUT SELECT].

To display the recording programme on the TV

It is necessary to display the recording programme onto the TV screen to perform operations such as pause.

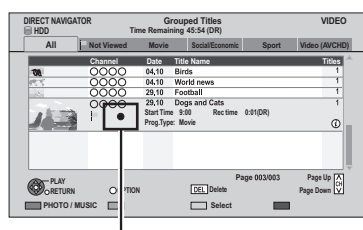
Press [CH ^ v] or [INPUT SELECT] to select the recording channel.

Simultaneous rec and play

You can play the recording title from the beginning or the titles previously recorded to the HDD.

① While recording

Press [DIRECT NAVIGATOR].



"●" is displayed on the recording programme.

② Select the title, then press [OK].

Recording TV programmes

To stop recording

Press [STOP ■].

■ When recording 1 programme

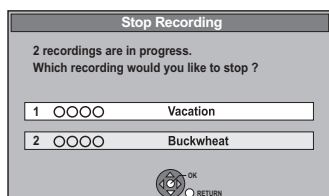
If the following screen appears



Select "Yes", then press [OK].

■ When recording 2 programmes

If the following screen appears



- 1 Select the programme, then press [OK].
- 2 Select "Yes", then press [OK].

To pause recording

It is necessary to display the programme you want to pause on the TV. (⇒ 29, To display the recording programme on the TV)

Press [PAUSE ■■].



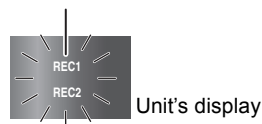
- Press again to restart recording.
(A title is not split into separate titles.)
- If paused while recording, the paused part may become a still picture for a moment during playback of that programme.

To perform 2 programmes simultaneous recording

While recording

Record another programme with steps ① – ⑤ on page 28.

"REC1" and "REC2" will light



- Either of programmes is necessary to be recorded from this unit's tuner.
- 2 programme simultaneous recording is not possible in the following conditions:
 - While executing "Flexible Recording via AV input" to the disc
 - While high speed copying
- Channel or input cannot be switched except to the recording programmes.

Direct TV Recording

You can immediately start recording the watching programme on the TV without switching the channels on this unit by using VIERA Link or Q Link (⇒ 72).

- Recording mode will be the mode that was selected for the previous recording. (⇒ 28, step ③)

Press [● DIRECT TV REC] and hold for about 1 second.

To stop recording partway

Press [STOP ■].



- You can also operate this unit with the TV remote control. Refer to the TV operating instructions for operation.
- When you connect the TV with a 21-pin Scart cable (⇒ 16), it is possible to record programmes that cannot be received with the tuner of this unit. (Recording mode: XP, SP, LP, EP)
- If you switch TV channels while recording broadcasting using the TV's tuner, Direct TV Recording stops.
- **Q Link** During Ext Link Standby mode or recording, Direct TV Recording is unavailable. (⇒ 66)

Notes for recording of an encrypted broadcast

This unit allows you to record/view/play an encrypted programme by decryption using a supporting CI module.

Recording of encrypted broadcast

The recording of encrypted broadcasts differs according to the "Recording for Encrypted Channel" (⇒ 81) settings as follows.

	Supporting CI module is inserted	Supporting CI module is not inserted
Automatic	Record (Decrypted)*	Record (Encrypted)
Decrypt Recording	Record (Decrypted)	Recording impossible
Encrypt Recording	Record (Encrypted)	Record (Encrypted)

* Depending on the specifications of the CI module, the broadcast may be recorded in the encrypted form. (⇒ below)

2 encrypted programmes simultaneous recording/viewing/playing

Two programmes (e.g., "A" and "B") which need the same CI module for decryption will be recorded/viewed/played as follows:

● When "Automatic" is selected

Programme	"A"	"B"
While recording programme "A", start recording programme "B".	Record (Decrypted)	Record (Encrypted)
While viewing/playing programme "A", start timer recording programme "B".	Viewing/playing possible	Record (Encrypted)
While recording programme "A", view/play programme "B".	Record (Decrypted)	Viewing/playing impossible


● When "Decrypt Recording" is selected

Programme	"A"	"B"
While recording programme "A", start recording programme "B".	Record (Decrypted)	Recording impossible
While viewing/playing programme "A", start timer recording programme "B".	Viewing/playing impossible	Record (Decrypted)
While recording programme "A", view/play programme "B".	Record (Decrypted)	Viewing/playing impossible

● When "Encrypt Recording" is selected

Programme	"A"	"B"
While recording programme "A", start recording programme "B".	Record (Encrypted)	Record (Encrypted)
While viewing/playing programme "A", start timer recording programme "B".	Viewing/playing possible	Record (Encrypted)
While recording programme "A", view/play programme "B".	Record (Encrypted)	Viewing/playing possible

Encrypted titles

Programmes recorded in encrypted form () have the following restrictions:

- The encrypted title can be played back, but it does not mean that it is decrypted and saved in the decrypted form.
- Depending on the programme, it may not be possible to playback/decrypt after recording.
- There are restrictions on the playback and editing of encrypted programmes.
- To copy an encrypted programme, decryption must be performed.

Decryption



Decryption is performed when the unit is turned off. It will take about the same time as the recorded duration.



"COPY" on the unit's display remains lighted during decryption.

➤ It is also possible to decrypt manually (⇒ 47)



- To decrypt, insert the CI module into the CI slot (⇒ 12). During decryption, do not remove the CI module from this unit.
- The title before decryption will be deleted once decryption is completed.
- When the HDD does not have enough remaining space, decryption will not start.
- This function is stopped when this unit is turned on. Decryption will start from the beginning again once the unit is turned off.
- The decryption will not start if the timer recording is scheduled within the time required for the decryption.
- When a decryption fails, the screen icon () is changed to .

Timer recording

This operation will only record to HDD.

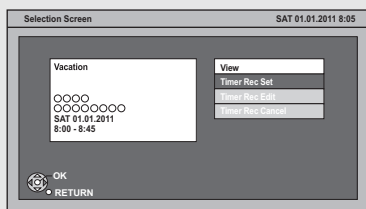


1 Press [GUIDE].



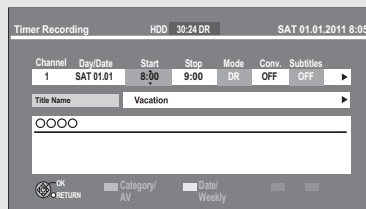
2 Select the programme, then press [OK].

- When the programme currently broadcasting is selected, following screen is displayed.



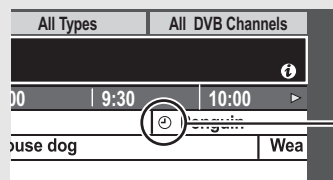
Select "Timer Rec Set", then press [OK].

3 Confirm the programme and make corrections if necessary using [▲, ▼, ◀, ▶].



(⇒ 33, Timer recording options)

4 Press [OK].



Timer icon (red)

The timer programme is stored and the timer icon (red) is displayed.

To cancel a timer recording on the TV Guide screen

- Select "Timer Rec Cancel", then press [OK] in step 2. ("⌚" in the TV Guide disappears)
- Select "Yes", then press [OK].

To modify the timer recording on the TV Guide screen

- Select "Timer Rec Edit", then press [OK] in step 2.
- Go to step 3 on page 33.

➤ About CI Plus restriction (⇒ 13)

➤ Using TV Guide system (⇒ 26)

➤ Notes for recording of an encrypted broadcast (⇒ 31)



- When timer recording from the external equipment, use manually programming timer recording. (⇒ 33)
- You can enter up to 64 programmes up to a month in advance. (Each daily or weekly programme is counted as one programme.)
- The receipt of the TV Guide system data is only possible via the aerial input of this unit. The receipt of the TV Guide data via Set Top Box is not possible.
- You can set the start and finish time to make the timer recording work successfully. (⇒ 81, Timer Record Start Buffer, Timer Record Stop Buffer)
- Some broadcast may not send programme information. Set the timer recording manually (⇒ 33).

To search the programmes

- ① While displaying TV Guide screen
Press the “Yellow” button (Prog.Type) or the “Blue” button (Category).
- ② Select the item, then press [OK].

Landscape view	The unit displays programmes in grey that do not belong to the selected programme type.
Portrait view	Only the selected programme types are displayed.

To return to the previous TV Guide list

Select “All Types” of the programme type or “All DVB Channels” of the Category in step ②.



- Category and programme types may not be assigned correctly depending on the programme information.

➤ To confirm and edit the timer programme (⇒ 35)

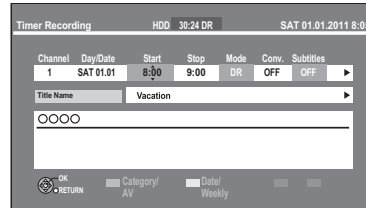


- You can enter up to 64 programmes up to a month in advance. (Each daily or weekly programme is counted as one programme.)
- When recording from the external equipment, “Mode (recording mode)” is XP, SP, LP, EP or FR.

Timer recording options

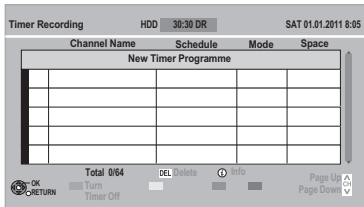
Select the items and change the items.

e.g.,



Manually programming timer recording

1 Press [PROG/CHECK].



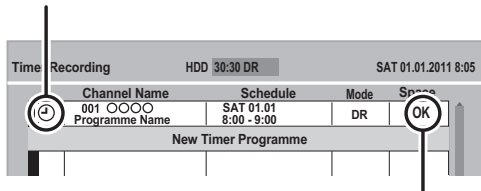
2 Select “New Timer Programme”, then press [OK].

3 Select the items and change the items. (⇒ right, Timer recording options)

4 Press [OK].

The timer programme is stored and the timer icon (red) is displayed.

Timer icon (red)



Check for available space on HDD, when the “!” is displayed. (⇒ 35)

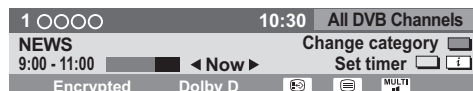
Channel	<p>Press [▲, ▼].</p> <ul style="list-style-type: none"> • You can select Category/AV with the “Red” button to switch Favourites, AV input, etc.
Day/Date	<p>Press [▲, ▼].</p> <p>You can select “Date” or “Weekly” by pressing the “Green” button.</p> <ul style="list-style-type: none"> • Auto Renewal Recording The unit will record the new programme over the old one. (Only daily/weekly timer recording) Press the “Yellow” button a few times. “Renew : ON” is displayed.
Start/Stop	<p>Press [▲, ▼].</p> <ul style="list-style-type: none"> • Press and hold [▲, ▼] to alter in 15-minute increments.
Mode/Conv.	<p>Press [▲, ▼].</p> <p>(⇒ 28, step ③)</p>
Subtitles	<p>(Only when item other than “OFF” is selected in “Conv.”)</p> <p>Press [▲, ▼].</p>
Title Name	<p>Select “Title Name”, then press [OK].</p> <p>(⇒ 70, Entering text)</p>

Timer recording from channel information

You can make timer recording of the current or next programme.

1 While watching a programme Press [STATUS ①].

e.g.,



2 Display the channel information of a programme to record.

- Switch the programme with [◀, ▶].
- Switch the channel with [▲, ▼].

3 Press the “Yellow” button.

4 Go to step 3 on page 33.

- You cannot change “Channel” and “Day/Date”.

To cancel recording when timer recording has already begun

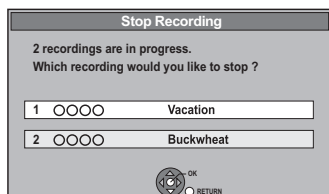
Press [STOP ■].

■ When recording 1 programme



Select “Yes”, then press [OK].

■ When recording 2 programmes



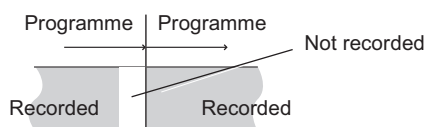
- 1 Select the programme, then press [OK].
- 2 Select “Yes”, then press [OK].



- If you have already set a daily/weekly timer recording, the recording will start at the next scheduled time.

Notes on timer recording

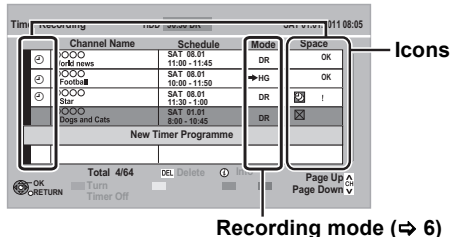
- When recording except in DR mode, the audio language, audio content and subtitle language will be selected according to the following settings:
 - “Multi Audio” of “Preferred Language” (⇒ 80)
 - “Audio for HG / HX / HE / HL / HM Recording” (⇒ 83)
 - “Subtitles” of “Preferred Language” (⇒ 80)
- When recording except in DR mode, teletext will not be recorded.
- (Only when recording broadcast in other than DR mode) This unit will record in the DR mode once, and then convert to the selected mode automatically during standby. If the title has not been decrypted, conversion will start after decryption.
- Depending on the state of the unit, playback may stop when recording begins.
- Even if you turn the unit off during the timer recording, the recording is continued.
- When you programme successive timer recordings to start, about last 1 minute of earlier programme will not be recorded.



- Starting the timer recording while executing other operation (⇒ 100)
- About 2 programme simultaneous recording (⇒ 30)

To confirm and edit a timer programme

Press [PROG/CHECK].



Screen icons

- Red: Timer recording standby is activated.
Grey: Timer recording standby is deactivated.
- Currently recording programme
- A part or all of the programme will not be recorded since the programme is overlapping.
- The HDD is full.
- Copy-protected programme
It was not recorded.
- The programme did not complete recording because of some reason.
- Auto Renewal Recording is set (⇒ 33).
- (When "Recording for Encrypted Channel" is set to "Decrypt Recording" only)
A part or all of the programme will not be recorded since the encrypted programme is overlapping.
- OK Displayed if the recording can fit in the remaining space
- Daily or weekly timer programme is set. (up to a maximum of one month from the present time)
- ! It may not be possible to record because:
 - there is not enough space left.
 - the number of possible titles has reached its maximum. (⇒ 103)
 - programmes are deactivated, etc.

To deactivate a timer programme

Select the programme, then press the "Red" button.

- The timer icon "⌚" (⇒ right) will change from red to grey.
- Press the "Red" button again to activate timer recording standby. (The timer icon "⌚" will change to red.)

To delete a timer programme

Select the programme, then press [DEL].

To edit a timer programme

- 1 Select the programme, then press [OK].
- 2 Change the timer recording options.
(⇒ 33, Timer recording options)

To show programme information

Press [STATUS ⓘ].

To exit the timer recording list

Press [EXIT].



- Failed programmes are deleted from the timer recording list at 4 a.m. two days later.

Playing DVD-Video



1

Insert a disc.

- Play starts from the point specified by the disc.

2

Select the item, then press [OK].

- Some items can also be selected using the number buttons.
- Playback starts.

To display Top Menu

- 1 Press [OPTION].
 - 2 Select "Playback Menu", then press [OK].
 - 3 Select "Top Menu", then press [OK].
- If the Top menu is not displayed
Press [DIRECT NAVIGATOR].

Playing recorded video contents

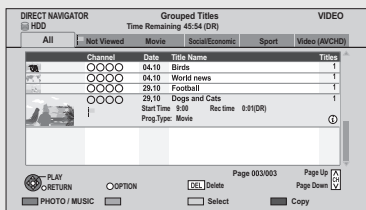


* DivX and MKV file only

1

■ HDD:

- ① Press [DRIVE SELECT], then select "HDD".
- ② Press [DIRECT NAVIGATOR].



■ Except HDD:

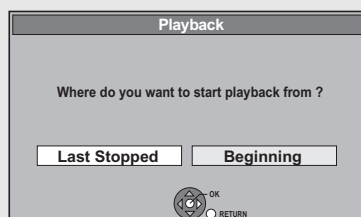
- ① Insert the media.
- ② Select the item in the menu screen, then press [OK].
 - It will go to step 2 automatically depending on the disc.

2

Select the title, then press [OK].

● Resume play function

If the following screen appears, select the point to start playback.



- AVCHD: If the menu screen is not displayed Press [PLAY/×1.3 ▶].

To playback of the playlist created on other equipment

- 1 Press [FUNCTION MENU].
- 2 Select "Playlists" in "Others", then press [OK].
- 3 Select the playlist, then press [OK].

➤ To display the menu screen (⇒ 19)

➤ About DivX VOD content (⇒ 99)

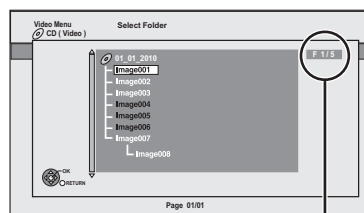


- Multiple titles may not playback continuously depending on the disc. Press [DIRECT NAVIGATOR], and playback by selecting the title.
- Playback of DivX and MKV is not possible during recording.
- Some DivX and MKV file may not be played back, depending on the video resolution and frame rate condition.

Using the tree screen to find a folder

DivX and MKV

- ① While the file list is displayed Press [OPTION].
- ② Select "Select Folder", then press [OK].



F: Selected folder no./Total folder no. including DivX and MKV title.

- You cannot select folders that contain no compatible files.

- ③ Select the folder, then press [OK].

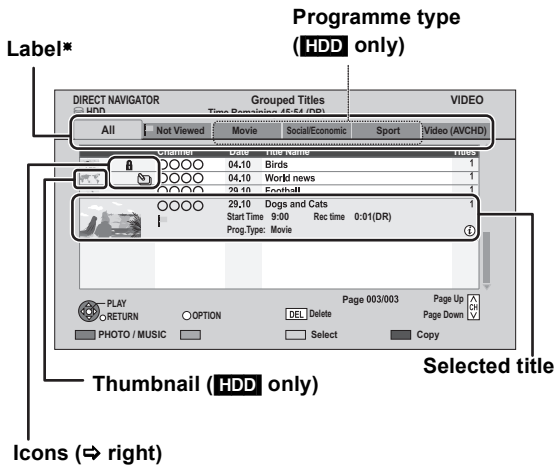
The file list for the folder appears.

Using the DIRECT NAVIGATOR (VIDEO)

Press [DIRECT NAVIGATOR].

e.g., **HDD**

Playing back video



* Only "All" will be displayed in "Label" when using the media other than HDD.

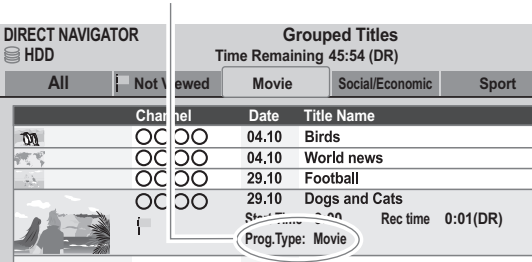
Label

HDD

Titles recorded to HDD will be categorized automatically. You can quickly find the recorded titles by selecting the label.

Select the label with [**◀**, **▶**].

To sort a selected title from the "All" label into the programme type labels, set "Prog.Type" of the title. (⇒ 45, Changing programme type of title)



- To change the displayed label, go to "Changing the programme type" on page 39.
- High Definition video (AVCHD) acquired from the disc, SD card or USB device is sorted to "Video (AVCHD)" automatically.

Screen icons

	Currently recording programme
	Protected title
	Title was not recorded due to recording protection
	Title cannot be played (When copying a title to the HDD, or when data is damaged etc.)
	Title is copy protected (One generation copy is permitted) (⇒ 13)
	Title is imposed a limit on the playable period. (⇒ 13) <ul style="list-style-type: none"> • Playback period limit can be checked in the information of that title. (⇒ 39) • The icon turns grey after the playback period has passed. • Title cannot be edited (except deleting) or copied. • When the title has not been played and decrypted, it will not be displayed.
	Encrypted title
	Title has failed to be decrypted <ul style="list-style-type: none"> • Press [STATUS ⓘ] to show the reason of the failure.
	Grouped titles
	Title has not yet been played
	Title is recorded using a different encoding system from that of the TV system on the unit. Alter the "TV System" setting on this unit to suit (⇒ 84).
	Radio programme
	Recorded in 1080/50p contents
	Recorded in 1080/60p contents
	Recording did not complete as the timer recording has started.

Switching to the PHOTO or MUSIC screen

HDD

- ① Press the “Red” button.
- ② Select “PHOTO” or “MUSIC”, then press [OK].

RAM

Press the “Red” button.

The screen switches from “VIDEO” to “PHOTO”.

Switching the appearance

HDD

- ① Press [OPTION].
- ② Select “Grouped Titles” or “All Titles”, then press [OK].

Grouped Titles	Two or more titles recorded in the daily/weekly timer recording mode are bundled and displayed as one item.
All Titles	Displays all titles.

To view the individual titles in grouped titles

HDD

While displaying Grouped Titles screen:

Select the item marked with , then press [OK].

Changing the programme type

HDD

Programme type displayed in the label can be changed.

- ① Select the programme type, then press the “Green” button.
- ② Select the item, then press [OK].



- “All”, “Not Viewed” and “Video (AVCHD)” cannot be changed.

Showing Information

Select the title, then press [STATUS ].



- Information of a recording title cannot be displayed.


Playback grouped titles

HDD

The titles will be played continuously.

Select the group, then press [PLAY/× 1.3 ►].



- This function cannot be used if the group includes any encrypted title ().

Editing the grouped titles

HDD

- ① Select the title or the group, then press the “Yellow” button.
A check mark is displayed. Repeat this step.
 - Press the “Yellow” button again to cancel.
 - If you perform “Remove”, select the title in the group.
- ② Press [OPTION].
- ③ Select the item, then press [OK].

Create Group	Selected titles are bundled to form a group. Select “Create”, then press [OK].
Release Grouping	All the titles in the group are released. Select “Release”, then press [OK].
Remove	Selected titles are removed from the group. Select “Remove”, then press [OK].

Changing the group name

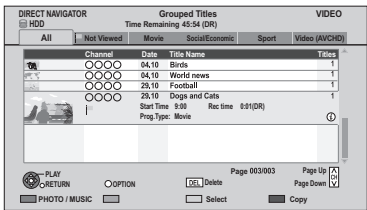
HDD

- ① Select the group, then press [OPTION].
- ② Select “Edit”, then press [OK].
- ③ Select “Enter Title Name”, then press [OK].
(⇒ 70, Entering text)
- Even if the group name is changed, the title names in the group will not be changed.

Playback from Chapter View

HDD RAM DVD-R DVD-RW +R +RW

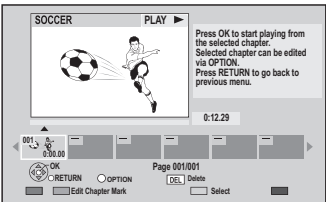
1 Press [DIRECT NAVIGATOR].



2 Select the title, then press [OPTION].

3 Select the “Chapter View”, then press [OK].

Chapter View screen
e.g., HDD



4 Select the chapter, then press [OK].

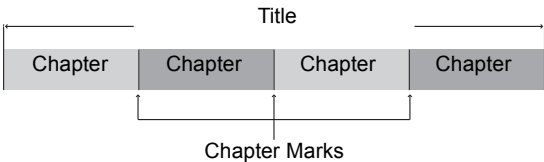
➤ Editing chapters in Chapter View (⇒ 47)

To create Chapter Marks

HDD RAM

Regarding chapters

You can divide a title into multiple chapters. Each section between the division points (Chapter Marks) becomes a chapter.



● Chapter Creation

HDD

This unit can create chapters automatically while recording broadcasting. (⇒ 81)




- If the title is recorded in the encrypted form, the chapter will be created only after the title is decrypted.

During the playback or pause
Press [CHAPTER].

To delete the Chapter Mark

- 1 While paused
Press [SKIP ◀◀] or [SKIP ▶▶] and skip to the location you want to delete.
- 2 Press [CHAPTER].
- 3 Select “Yes”, then press [OK].



- The maximum number of chapters:
(Depends on the state of recording.)
HDD: Approx. 1000 per title
RAM: Approx. 1000 per disc
- HDD When the title has the maximum number of chapters, you cannot perform the Resume play function (⇒ 37) or the “Change Thumbnail” (⇒ 45) with the title.
- Chapters cannot be created in encrypted title ().

Operation during play



* DivX and MKV file only



- Depending on the media and the type of file, some operations may not be possible.
- Depending on the media, it may take time for the menu screen, pictures, sound, etc. to start.
- Discs continue to rotate while menus are displayed. Press [STOP ■] when you have finished playback to protect the unit's motor, your TV screen, etc.
- Titles that are copy protected (Copying is prohibited) cannot be viewed going back in time more than the allowed playback period. (⇒ 13)

Showing status messages

Press [STATUS ⓘ] twice.

e.g.,



Title number and elapsed time during play and recording mode

Stop

Press [STOP ■].

The stopped position is memorized.

Resume play function

Press [PLAY/× 1.3 ▶] to restart from this position.

- The resume play function does not work depending on the disc.

Stopped position

HDD: Stopped position for each title is memorized.

Discs: Only previous stopped position is memorized.
The position is cleared if the tray is opened or the unit is turned off.

Search

Press [SLOW/SEARCH ◀◀] or [SLOW/SEARCH ▶▶].

- Press [PLAY/× 1.3 ▶] to restart play.



- The speed increases up to 5 steps.
(+R +RW Up to 3 steps)
- Audio is heard during first level search forward.
- **DivX and MKV:** Audio is not heard during all levels search.

Manual Skip

■ Skip forward 1 minute

Press [MANUAL SKIP +60s].

■ Skip backward 10 seconds

Press [MANUAL SKIP -10s].

- Each time you press, play skips forward or backward.



- **DivX and MKV:** This function is not effective.

Quick View

Play speed is quicker than normal.

Press and hold [PLAY/× 1.3 ▶].

- Press again to return to normal speed.



- **DivX and MKV:** This function is not effective.
- **DVD-RW** This function is not effective even if it is finalised.
- This function cannot be used on encrypted titles (Ⓜ).

Pause

Press [PAUSE ||].

- Press [PAUSE ||] again or [PLAY/× 1.3 ▶] to restart play.

Slow-motion

While paused, press [SLOW/SEARCH ◀◀] or [SLOW/SEARCH ▶▶].

- Press [PLAY/× 1.3 ▶] to restart play.



- The speed increases up to 5 steps.
- **DivX and MKV:** This function is not effective.
- **AVCHD:** Forward direction [SLOW/SEARCH ▶▶] only.
- This function cannot be used on encrypted titles (Ⓜ).

Operation during play

Frame-by-frame

While paused, press [◀] (◀||) or [▶] (||▶).

- Each press shows the next frame.
- Press and hold to change in succession forward or backward.
- Press [PLAY/× 1.3 ▶] to restart play.



- **DivX and MKV:** This function is not effective.
- **AVCHD:** Forward direction [▶] (||▶) only.
- This function cannot be used on encrypted titles (🔒).

Skipping the title or chapter

Skip to the title or chapter you want to play.

During play or while paused, press [SKIP ◀◀] or [SKIP ▶▶].



- It will skip to the beginning of chapters (⇒ 40) if the title contains chapters.
- **HDD** It will not skip the title. But the title in the grouped titles during the "Playback grouped titles" (⇒ 39) will be skipped.
- [SKIP ▶▶] is not effective for encrypted titles (🔒).

Skipping the specified time (Time Slip)

- ① **Press [TIME SLIP].**
- ② **Select the time with [▲, ▼], then press [OK].**

Play skips the specified time.

- Press and hold [▲, ▼] to change the time by 10-minute.



This automatically disappears after approximately 5 seconds. To show the screen again press [TIME SLIP] again.



- **DVD-V, DivX, MKV and AVCHD:** This function is not effective.

Changing audio

Press [AUDIO].

- It will switch depending on the contents recorded every time it is pressed.

Switching subtitles

■ **HDD**

Press [STTL 🗨️].

- If you want to switch the subtitle language, select the subtitle with "Subtitle Language" in the Disc menu (⇒ 76).

■ **DVD-V, DivX, MKV and AVCHD:**

Display with "Subtitles" in the Disc menu (⇒ 76).



- **DivX and MKV:** If the subtitles text are not displayed correctly, try changing the language settings (⇒ 99, Displaying subtitle text).

Displaying the Teletext

■ **HDD**

Press [TEXT 📄].



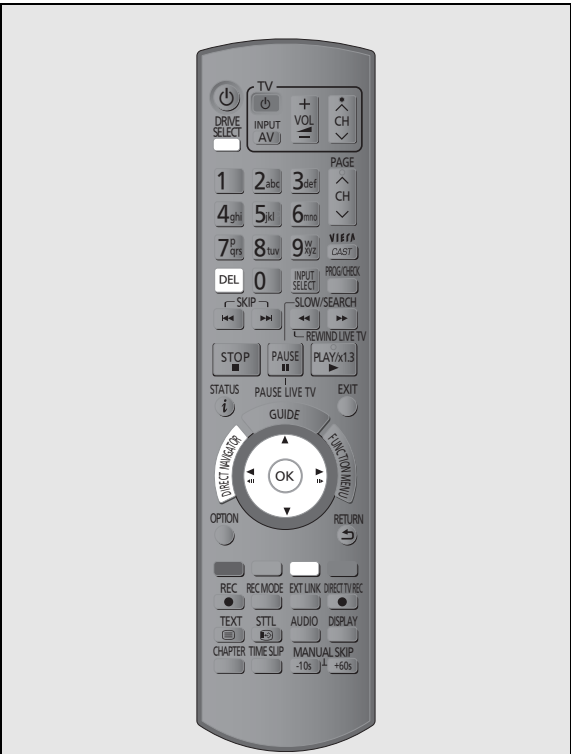
- Teletext display mode is TOP (FLOF) only.
- Some functions may not work.
- Teletext cannot be displayed when the subtitles are set to ON.

Aspect

You can switch the screen mode. (⇒ 90)

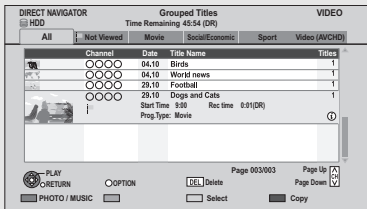
Deleting recorded titles

Once deleted, recorded content cannot be restored to its original state. Make certain before proceeding.



• You cannot delete items on finalised discs.

- 1 While stopped Press [DRIVE SELECT], then select “HDD” or “DVD”.
- 2 Press [DIRECT NAVIGATOR].



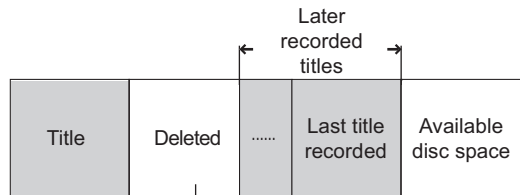
- 3 Select the title, then press the “Yellow” button.
A check mark is displayed. Repeat this step.
• Press the “Yellow” button again to cancel.
- 4 Press [DEL].
- 5 Select “Delete”, then press [OK].

Deleting during play

- 1 While playing Press [DEL].
- 2 Select “Delete”, then press [OK].

Available disc space after deleting

- **HDD RAM**
The space deleted becomes available for recording.
- **DVD-RW +RW**
Available recording space increases only when the last recorded title is deleted.



This space becomes available for recording after all the later recorded titles are deleted.

- **DVD-R +R**
Available space does not increase even after the contents are deleted.

Editing recorded titles

- Once deleted, divided or partially deleted, recorded content cannot be restored to its original state. Make certain before proceeding.
- With titles that are copy protected (Copying is prohibited), you cannot perform editing other than Delete. (⇒ 13)



- You cannot edit finalised discs.



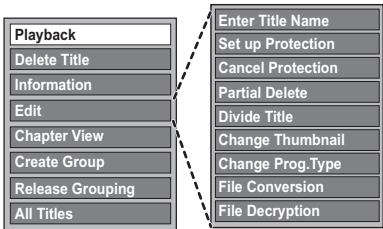
- Depending on the media and the type of file, some operations may not be possible.

- 1 Press [DIRECT NAVIGATOR].
- 2 Select the title.



- Multiple editing
Press the “Yellow” button.
A check mark is displayed. Repeat this step.
•Press the “Yellow” button again to cancel.

- 3 Press [OPTION].
- 4 Select the item, then press [OK].



- “Edit” has several functions (e.g., File Conversion).

Entering title name

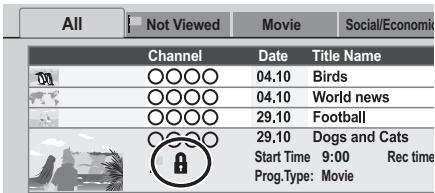
Select “Enter Title Name” in “Edit”, then press [OK].

(⇒ 70, Entering text)

Setting protection

HDD RAM +R +RW

Protection setting prevents the title from accidental deletion.



- ① Select “Set up Protection” or “Cancel Protection” in “Edit”, then press [OK].
 - ② Select “Yes”, then press [OK].
- 🔒 appears when setting the protection.



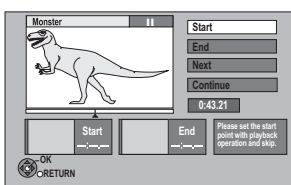
- This function cannot be used on encrypted titles (🔒).

Deleting

- ① Select “Delete Title”, then press [OK].
- ② Select “Delete”, then press [OK].

Partial deleting

HDD RAM



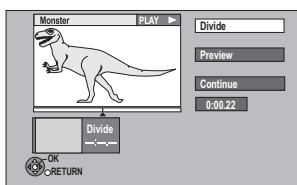
- ① Select “Partial Delete” in “Edit”, then press [OK].
- ② Press [OK] at the start point and end point to delete.
 - Press [PLAY/×1.3 ►] to start the playback when the title is paused.
- ③ Select “Continue”, then press [OK].
 - Select “Next”, then press [OK] to delete other sections. Up to 20 sections can be set. (⇒ go to step ②)
- ④ Select “Delete”, then press [OK].
 - Chapter Mark is generated in the scene that was partially deleted.
- ⑤ Press [RETURN ↵].



- You can find the desired point by using search or Time slip function, etc.
- You cannot set points if they are too close to each other. You cannot set an end point before a start point.
- This function cannot be used on encrypted titles (Ⓕ).

Dividing title

HDD RAM



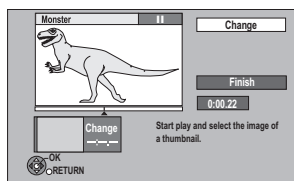
- ① Select “Divide Title” in “Edit”, then press [OK].
- ② Press [OK] at the point to divide the title.
- ③ Select “Continue”, then press [OK].
- ④ Select “Divide”, then press [OK].
 - To confirm the division point
Select “Preview”, then press [OK]. (The unit plays 10 seconds before and after the division point.)
 - To change the division point
Restart play and select “Divide”, then press [OK] at the division point.



- Video and audio just before and after the division point may momentarily cut out.
- HDD Divided titles form a group of titles.
- You can find the desired point by using search or Time slip function, etc.
- This function cannot be used on encrypted titles (Ⓕ).

Changing thumbnail

HDD RAM DVD-R DVD-RW +R +RW



- ① Select “Change Thumbnail” in “Edit”, then press [OK].
- ② Press [PLAY/×1.3 ►] to start play.
- ③ Press [OK] at the point to use as a thumbnail.
 - To change the point
Restart play and select “Change”, then press [OK] at the point to change.
- ④ Select “Finish”, then press [OK].

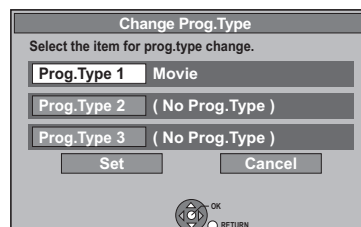


- DVD-R DVD-RW +R +RW It is possible to change the image displayed on the Top Menu after finalising or creating Top Menu.
- You can find the desired point by using search or Time slip function, etc.
- This function cannot be used on encrypted titles (Ⓕ).

Changing programme type of title

HDD

Programme type information in the title can be edited.



- ① Select “Change Prog.Type” in “Edit”, then press [OK].
- ② Select the item to change a programme type, then press [OK].
- ③ Select the programme type, then press [OK].
- ④ Select “Set”, then press [OK].

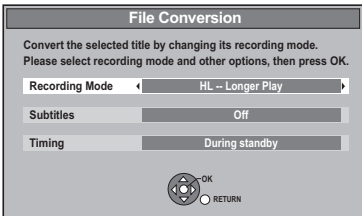
File Conversion

HDD

File Conversion is a function to convert the recording mode of the title in DR mode and AVCHD contents. The size of the converted title will be small regularly. It will take about the same time as the recorded duration.

- ① Select “File Conversion” in “Edit”, then press [OK].

e.g.,



- ② Select the recording mode (⇒ 6, 105), then press [▼].
- ③ Select whether to record the subtitle or not, then press [▼].

Automatic	Subtitles will be recorded for titles with subtitles. You cannot switch the subtitle on or off during the playback.
Off	Subtitle will not be recorded.

- ④ Select when to start the conversion, then press [OK].

Now	Conversion begins immediately after step ⑥. Recording and playback are impossible during conversion. Timer recording will not be performed during conversion.
During standby	Conversion will be performed after the unit is turned off in a time slot for which no timer recording is set.

- If an encrypted title (Ⓜ) is included, “Now” cannot be selected.

- ⑤ Select whether to delete the original title or not, then press [OK].

Convert & Delete	The original title will be deleted to save HDD capacity after conversion.
Convert Only	The original title remains after conversion.

- The original title will be deleted after File Conversion when a title that is copy protected (One generation copy is permitted) is selected. (⇒ 13)

- ⑥ ■ “Now” conversion:
Select “Start”, then press [OK].

- “During standby” conversion:
Press [OK].

- Conversion is performed when the unit is turned off.



“COPY” on the unit’s display remains lighted during conversion.

- If the title is encrypted (Ⓜ), conversion will start after decryption.

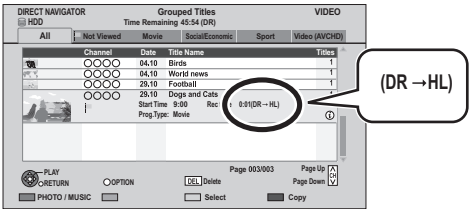
To cancel a “Now” conversion

Press and hold [RETURN ↵] for more than 3 seconds.

To confirm whether the conversion is completed

Press [DIRECT NAVIGATOR].

e.g.,



When “○○ → ○○ (Recording mode for conversion)” is displayed, the conversion has not finished.

To cancel a “During standby” conversion

After performing steps 1–3 (⇒ 44)


- 1 Select “File Conversion” in “Edit”, then press [OK].
- 2 Select “Yes”, then press [OK].



- To use “File Conversion”, the HDD needs enough storage capacity.
- The size of converted title might increase depending on the title (such as radio programmes).
- Teletext will not be recorded.
- File Conversion is stopped when this unit is turned on during performing “During standby” conversion. Conversion will start from the beginning again once the unit is turned off.
- When converted, the audio content and subtitle language will be selected according to the following settings:
 - “Multi Audio” of “Preferred Language” (⇒ 80).
 - “Audio for HG / HX / HE / HL / HM Recording” (⇒ 83)
 - “Subtitles” of “Preferred Language” (⇒ 80).
- In titles with the Auto Renewal Recording function (⇒ 33) set, a programme may be unintentionally converted while in “During standby”.

File Decryption

HDD

Encrypted titles () can be decrypted manually.

- ① Select “File Decryption”, then press [OK].
- ② Select whether to delete the original title or not, then press [OK].



Yes	The original title will be deleted to save HDD capacity after decryption.
No	The original title remains after decryption.

- ③ Select “Start”, then press [OK].

Decryption starts.



“Decrypting” appears during decryption.

- When a title that is copy protected (One generation copy is permitted) is selected, the original title will be deleted after decryption. (⇒ 13)
- When a decryption fails, the screen icon () is changed to “  ”.

To cancel the decryption

Press and hold [RETURN ↵] for more than 3 seconds.



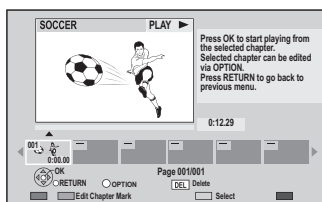
- For decryption, the CI module that supports the programme is necessary.
- Depending on the programme, playback/decryption may not be possible.
- During decryption, do not remove the CI module from this unit.

Editing chapters

HDD RAM

Select “Chapter View”, then press [OK].

Chapter View screen



■ Edit Chapter Mark:

Select the point where you want to start a new chapter while viewing the title.

- ① Press the “Green” button.
- ② Press [OK] at the point you want to divide.
 - Repeat this step.
- ③ Press [RETURN ↵] to go to Chapter View screen.

■ To delete the chapter:

- ① Select the chapter, then press [DEL].
 - Multiple editing
Select the chapter, then press the “Yellow” button. A check mark is displayed. Repeat this step until you select the chapters to be deleted.
• Press the “Yellow” button again to cancel.
- ② Select “Delete”, then press [OK].

■ To combine chapters (Delete chapter mark):

- ① Select the chapter, then press [OPTION].
- ② Select “Combine Chapters”, then press [OK].
- ③ Select “Combine”, then press [OK].
The selected chapter is combined to the next chapter.

➤ Playback from Chapter View (⇒ 40)



- This function cannot be used on encrypted titles ().

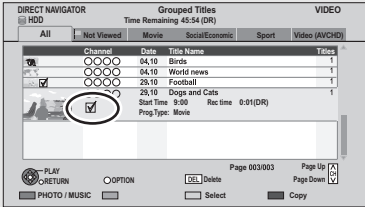
Copying titles

➤ About CI Plus restriction (⇒ 13)



- 1 Insert a disc.
- 2 Press [DRIVE SELECT] to select “HDD”, then press [OK].
- 3 Press [DIRECT NAVIGATOR].
- 4 Select the title, then press the “Yellow” button.

A check mark is displayed. Repeat this step.



• Press the “Yellow” button again to cancel.

- 5 Press the “Blue” button.
- 6 To start copying the selected title Select “Yes”, then press [OK].
 - To change selection (⇒ 49)
- 7 Set other settings, then press [OK].

e.g.,

(⇒ 49, Setting the copying options)
- 8 Select “Yes”, then press [OK] to start copying.

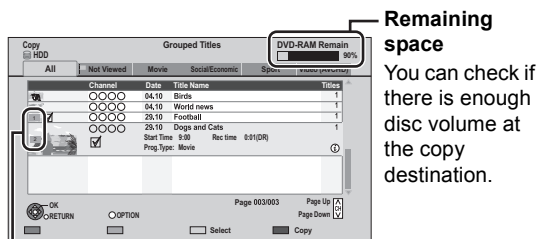


- Encrypted titles () cannot be copied. (⇒ 31)
- If you wish to choose the audio language, select the language from “Multi Audio” of “Preferred Language” before copying (⇒ 80).
- **DVD-R** Use “Copy Video (AVCHD) to Disc” when copying HD Video (AVCHD format) in high definition. (⇒ 54)

To change the selection

- ① **Select “No”, then press [OK] in step ⑥ (⇒ 48).**

e.g., **HDD** → **RAM**



The order of copying

- ② ■ **To change the selected titles**
Select the title, then press the “Yellow” button.

A check mark is displayed. Repeat this step.

- Press the “Yellow” button again to cancel.

■ To change the picture quality

- 1 Select the title, then press [OPTION].**
- 2 Select “Conversion Select”, then press [OK].**
- 3 Select the picture quality, then press [OK].**

Repeat steps 1–3 if you want to select the picture quality for other titles.

- ③ **Go to step ⑤ (⇒ 48).**

Screen icons



Titles that will be copied to the disc in normal speed

- **Screen icons on the DIRECT NAVIGATOR (⇒ 38)**

Setting the copying options

Select the item in step ⑦ (⇒ 48).

- ① Select the item.**
- ② Press [◀, ▶] to change the settings.**

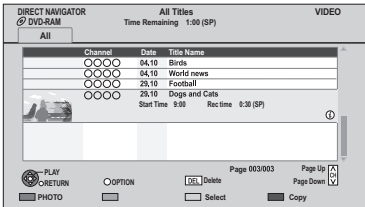
Automatic Standby after Copy	Select “On” or “Off”. <ul style="list-style-type: none"> ● If “On” is selected, this unit is turned to standby mode when it is not operated for approximately 5 minutes after completing copy.
Subtitles	Select “Automatic” or “Off”. <ul style="list-style-type: none"> ● If you wish to choose the subtitle, select the language from “Subtitles” of “Preferred Language” before copying (⇒ 80).
Finalise (HDD → DVD-R DVD-RW +R only) Create Top Menu (HDD → +RW only)	Select “On” or “Off”. <ul style="list-style-type: none"> ● If “On” is selected in “Finalise”, the discs become play-only and you can also play them on other DVD equipment. However, you can no longer record or edit. ● If “Off” is selected, it is possible to perform “Finalise” or “Create Top Menu” later. (⇒ 69)

Copying titles

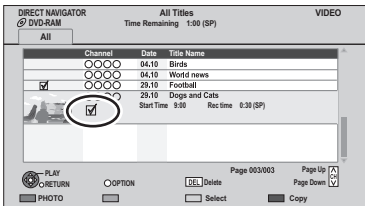
Copying to HDD with DIRECT NAVIGATOR

RAM +RW → HDD

- 1 Insert a disc.
The menu screen appears.
- 2 Select “Play Video”, then press [OK].
e.g., RAM

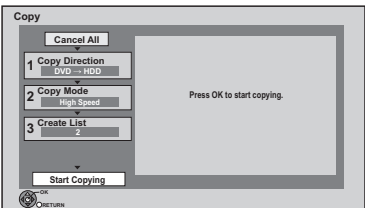


- 3 Select the title, then press the “Yellow” button.
A check mark is displayed. Repeat this step.



• Press the “Yellow” button again to cancel.

- 4 Press the “Blue” button.



• To change the detailed settings for copy, refer to “Copying titles with copying list” (⇒ right).

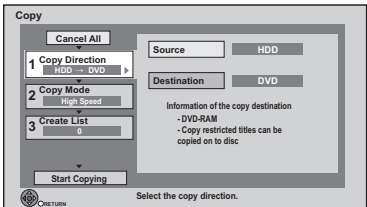
- 5 Select “Start Copying”, then press [OK].
- 6 Select “Yes”, then press [OK] to start copying.

Copying titles with copying list

HDD → RAM DVD-R DVD-RW +R +RW

RAM +RW → HDD

- 1 Insert a disc.
The menu screen appears.
- 2 Select “Copy”, then press [OK].
- 3 Set the copy direction.
 - ① Select “Copy Direction”, then press [▶] (right).
 - ② Set “Source”.
 - ③ Press [◀] to confirm.

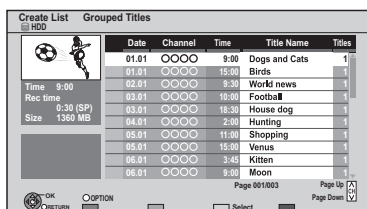


- 4 Set the recording mode (⇒ 6, 105).
 - ① Select “Copy Mode”, then press [▶] (right).
 - ② Set “Recording Mode”.
 - ③ Press [◀] to confirm.

5 Register titles for copy.

- ① Select "Create List", then press [►] (right).
- ② Select "New item", then press [OK].
- ③ Select the titles, then press [OK].

e.g., **HDD**



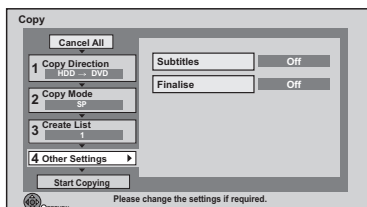
(⇒ 52, Selecting the titles for the copying list)

- ④ Press [◀] to confirm.

6 Set other settings.

- ① Select "Other Settings", then press [►] (right).

e.g.,



- This screen does not appear depending on the copying mode. (⇒ go to step 7)

- ② Select the copying option, then press [OK].

• Subtitles

Select "Automatic" or "Off", then press [OK].



- If you wish to choose the subtitle, select the language from "Subtitles" of "Preferred Language" before copying (⇒ 80).

• Finalise

Create Top Menu

Select "On" or "Off", then press [OK].



- If "On" is selected in "Finalise", the discs become play-only and you can also play them on other DVD equipment. However, you can no longer record or edit.
- If "Off" is selected, it is possible to perform "Finalise" or "Create Top Menu" later. (⇒ 69)

- ③ Press [◀] to confirm.

7 Select "Start Copying", then press [OK].

8 Select "Yes", then press [OK] to start copying.

To cancel all registered copying settings and lists

After performing steps 1–2

- 1 Select "Cancel All", then press [OK].
- 2 Select "Yes", then press [OK].

➤ To display the menu screen (⇒ 19)



- Encrypted titles (Ⓢ) cannot be copied. (⇒ 31)
- If you wish to choose the audio language and subtitle language, select the language from "Multi Audio" of "Preferred Language" before copying (⇒ 80).
- Titles in the grouped titles and other titles cannot be registered simultaneously.

Copying titles

Selecting the titles for the copying list

Select the item in step 5-③ (⇒ 51).

Press the “Yellow” button.

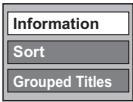
A check mark is displayed. Repeat this step until you select all necessary items.

●Press the “Yellow” button again to cancel.

The title will be copied in the order of the copying list. If you want to specify the order, edit the copying list after the items are selected. (⇒ right)

●Other operation

- ① Press [OPTION].
- ② Select the item, then press [OK].



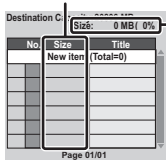
Information	Information is shown.
Sort (All Titles screen only)	Titles are sorted according to the selected item.
Grouped Titles All Titles	Switch to Grouped Titles screen or All Titles screen.

Copying list icons and functions

Copying list indicators

	Titles that cannot be copied in high speed mode
	Title contains photos ●Photos cannot be copied.
	Title recorded using a different encoding system from that of the TV system currently selected on the unit.
	Titles displaying these marks cannot be selected.

Data size of each registered item



- Size:**
Data size recorded to the copy destination
- When copying at normal speed, the total data size will change according to the recording mode.
 - The total data size shown may be larger than the sum of the data sizes for each registered item, because of data management information being written to the copy destination, etc.

Editing the copying list

Select the title after step 5-③ (⇒ 51).

- ① Press [OPTION].
- ② Select the item, then press [OK].





Delete All	All titles that you registered to copy are deleted. Select “Yes”, then press [OK].
Add	Add new items to the copying list. 1 Select the title, then press the “Yellow” button. A check mark is displayed. Repeat this step until you select all necessary items. ●Press the “Yellow” button again to cancel. 2 Press [OK].
Delete	Select “Yes”, then press [OK].
Move	Move selected items or change the order of items on the copying list. Select the destination, then press [OK].

Notes for copying

Notes for high speed copy

The following recording mode and media combinations support high speed copying.

Original title's recording mode	Media
XP/SP/ LP/EP/ FR	
	 <p>* DVD-RAM only</p>

Converting the recording mode will result in a normal speed copy.



- It is impossible to copy at high speed in the following cases:
 - HDD** → **DVD-R DVD-RW +R +RW** :
 - Copy including a title that was recorded to HDD with "Rec for High Speed Copy" set to "Off" (⇒ 81)
 - Titles that contain many deleted segments
 - Titles that have been copied to the HDD from an SD card or a Panasonic video camera, etc. with HDD (SD Video) (⇒ 67)
 - HDD** → **+R +RW** :
 - Titles recorded in "EP" mode and "FR (recordings 5 hours or longer)" mode
 - Titles recorded in 16:9 aspect
 - HDD** → **DVD-R DVD-RW** :
 - Titles recorded in 16:9 aspect using "EP" mode or "FR (recordings 5 hours or longer)" mode

Notes for normal speed copy

- You cannot copy to the disc in the following cases.
 - DVD-R DVD-RW +R +RW**
 - When there is not enough free space on the HDD.
 - When the number of titles recorded to the HDD and the number of titles to be copied to the disc is greater than 999 in total.
 - DVD-R DVD-RW +R +RW**
 - If copy is cancelled during the step while temporarily copying to the HDD, then nothing will be copied.
 - DVD-R DVD-RW +R +RW**
 - Even if the title was not copied to the disc, the amount of remaining writable disc space becomes less.
 - When copying title recorded in 1080/50p or 1080/60p, it cannot copy in progressive. (⇒ 109)

Notes for copying to the DVD-RAM

RAM

When copying to DVD-RAM using "8 hours" mode, play may not be possible on DVD players that are compatible with DVD-RAM. Use "6 hours" mode if playback may be on other equipment. (⇒ 81, Recording time in EP mode)

About maintaining the chapter mark

- The position of the chapter might shift slightly.
- It will not maintain the exceeded amount if it exceeds the maximum chapter numbers on a disc.
 - RAM DVD-R DVD-RW** : Approx. 1000
 - +R +RW** : Approx. 254
(Depends on the state of recording.)

Copying Title Playing

HDD → **RAM** **DVD-R** **DVD-RW** **+R** **+RW**

1 Playback the title to copy.

- Multiple audio, subtitle and Teletext displayed during playback will be copied.
 - Select the multiple audio with “Multi Audio” in the Disc menu (⇒ 76)
 - Select the subtitle with “Subtitle Language” in the Disc menu (⇒ 76)

2 Press [OPTION].

3 Select “Copy Title Playing”, then press [OK].



4 Select “Start”, then press [OK].

- Copying will start from the beginning of the title regardless of the playing position.

To stop copying

Press and hold [RETURN ] for 3 seconds.



- Encrypted titles () cannot be copied.
- You can record to or play HDD while high speed copying. Press [OK] to exit the screen display.
- Press [STATUS ] to confirm the current progress.

- **DVD-R** **DVD-RW** **+R** To play the disc on other players, it is necessary to finalise them after copy (⇒ 69).
- **+RW** To play the disc on other players, we recommend you create Top Menu (⇒ 69), but they may not play on all DVD players.

■ Speed and recording mode when copying

The high speed copy is performed if available.

➤ Notes for copying (⇒ 53)



- **RAM** **DVD-R** **DVD-RW** **+R** **+RW** When copying the titles in DR, HG, HX, HE, HL or HM modes, copy will be performed at normal speed in FR mode.
- When copying the titles in XP, SP, LP, EP or FR modes and the copy destination (disc) does not have enough space, copy will be performed at normal speed in FR mode.

Copying HD Video (AVCHD format) from HDD

You can copy HD Video (AVCHD format) recorded on HDD by a Panasonic video camera etc. to a disc.

■ **HDD** → **DVD-R** (High Definition)

1 Insert a new disc.

The menu screen appears.

2 Select “Copy Video (AVCHD) to Disc”, then press [OK].

3 Go to step 5 on page 51, “Copying titles with copying list”.

➤ To display the menu screen (⇒ 19)



- This function can only be used for unformatted disc.
- Discs will be automatically finalised after copy, making recording no longer possible.
- You can choose the thumbnail image of the Top Menu before using this function. (⇒ 45, Changing thumbnail)
- The following HD Video (AVCHD format) cannot be copied to the disc in high definition.
 - Exceeding 18 Mbps
 - 1080/50p or 1080/60p
 - Without the AVCHD information (video recorded with certain non-Panasonic equipment, etc.)

■ **HDD** → **RAM** **DVD-R** **DVD-RW** **+R** **+RW** (Standard Definition)

Go to step 1 on page 50, “Copying titles with copying list”.

- Select XP, SP, LP, EP or FR mode in step 4-②.

➤ Copying HD Video (AVCHD format) from other equipment (⇒ 67)

Copying a finalised disc

DVD-V → HDD

While playing a disc, the content being played is copied to the HDD according to the set time.

1 Press [FUNCTION MENU].

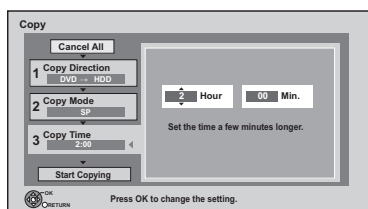
2 Select “Copy Video” in “Copy”, then press [OK].

3 Set “Copy Mode”.

- ① Select “Copy Mode”, then press [▶] (right).
 - “Recording Mode” is selected.
- ② Press [OK], then select the recording mode.
 - You can only select XP/SP/LP/EP.
- ③ Press [◀] to confirm.

4 Set “Copy Time”.

- ① Select “Copy Time”, then press [▶] (right).
- ② Select “Time Setting”, then press [OK].
- ③ Select “On” or “Off”.
 - When copying all the content on the disc select “Off”.
 - When you select “On”, set the copying time.



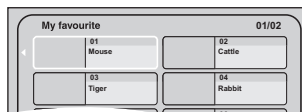
- Set a few minutes longer than the source title, in order to include the operation time before play begins.

- ④ Press [◀] to confirm.

5 Select “Start Copying”, then press [OK].

6 Select “Yes”, then press [OK] to start copying.

**7 When the Top Menu is displayed
Select the title you want to start
copying, then press [OK].**



After the last title on the disc has finished playing the Top Menu is recorded until the set time is reached.

To stop copying

Press [STOP ■].

You can also press and hold [RETURN ↵] for 3 seconds.

- If stopped partway, copying will be up to that point.



- Operations and on-screen displays during copy are also recorded.
- Almost all DVD-Video on sale have been treated to prevent illegal copying, and cannot be copied.
- The content is recorded as 1 title from the start of copy to the end.
- If play does not begin automatically press [PLAY/×1.3 ▶] to start.

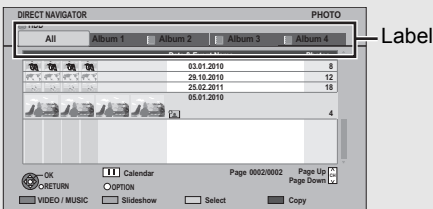
Playing photos



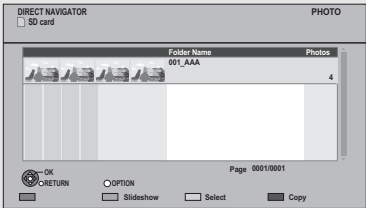
* **RAM DVD-R** only

- 1
- **HDD**
 - 1 Press **[FUNCTION MENU]**.
 - 2 Select “Photo” in “Playback Contents”, then press **[OK]**.
 - **RAM DVD-R CD SD USB**
 - 1 Insert the disc, SD card or USB memory.
 - 2 Select “View Photos”, then press **[OK]**.

- 2
- Select the event, then press **[OK]**.
e.g., **HDD**



e.g., **SD**



- **To select the label**
Press **[◀, ▶]**.
- **Start Slideshow**
 - 1 Select a date or folder, then press the “Green” button.
 - 2 Select “Start Slideshow” then press **[OK]**.
- **Switching the Calendar screen (HDD)**
Press **[PAUSE ■■]**.

- 3
- Select the photo, then press **[OK]**.
- Press **[◀, ▶]** to display the previous or next photo.

- To stop the Slideshow**
Press **[RETURN ↵]**.
- To pause the Slideshow**
Press **[PAUSE ■■]**.
● Press **[PAUSE ■■]** again to restart.
- To exit the Calendar screen**
Press **[PAUSE ■■]**.

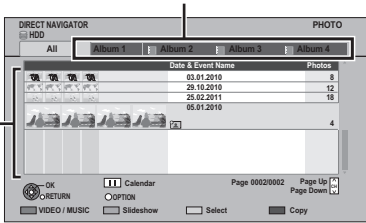
➤ **Slideshow Settings (⇒ 57)**



- You cannot play photos while recording or copying.
- It may take a few moments for photos to display.
- When there are many files and/or folders, some files may not be displayed or be playable.

■ **DIRECT NAVIGATOR (PHOTO) screen**




e.g., **HDD**
Album (⇒ below)



Event

- It is displayed for each recording date.
- It is displayed for each folder for media other than HDD.

Screen icons:

- **Album (HDD)**
(Label) Placing photos in albums of your choice makes it easier to find them. (⇒ 58)
- **Photo protected**
- **HDD**
New photo which is stored and not viewed

Switching to the VIDEO or MUSIC screens

HDD

- ① While the DIRECT NAVIGATOR (PHOTO) screen displayed
Press the “Red” button.
- ② Select “VIDEO” or “MUSIC”, then press [OK].

RAM

While the DIRECT NAVIGATOR (PHOTO) screen displayed
Press the “Red” button.

- The screen switches from “PHOTO” to “VIDEO”.

Photo play option

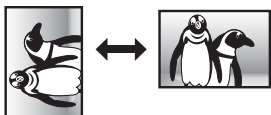
- ① While displaying a photo
Press [OPTION].
- ② Select the item, then press [OK].

Photo Menu

• Start Slideshow

You can start a slideshow.

• Rotate RIGHT, Rotate LEFT



- Rotation information will not be stored depending on the media.

• Information

Information (shooting date etc.) is shown.

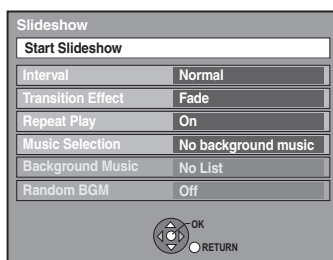
Aspect

You can switch the screen mode. (⇒ 90)

Slideshow Settings

You can set the items for slideshow.

While displaying DIRECT NAVIGATOR (PHOTO)
Press the “Green” button.



• Start Slideshow

You can start a slideshow.

• Interval

You can setup the time until the next photo is to display.

• Transition Effect

Effect for the next photo to display can be set.

• Repeat Play

You can setup to playback repeatedly.

• Music Selection

You can select background music on (either from HDD or USB) or off.

• Background Music

You can select background music from HDD (My Favourites or Playlists) or USB (Folder).

• Random BGM

You can playback the BGM in random order.

Editing photos



* **RAM** only

1

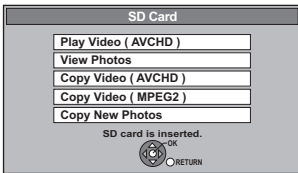
■ **HDD**

- ① Press **[FUNCTION MENU]**.
- ② Select **"Photo"** in **"Playback Contents"**, then press **[OK]**.

■ **RAM SD**

- ① Insert the disc or the SD card.

e.g., **SD**



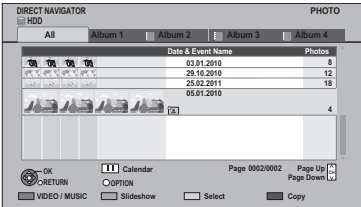
- ② Select **"View Photos"**, then press **[OK]**.

2

■ **Editing the event:**

Select the event, then press **[OPTION]**.

e.g., **HDD**



■ **Editing the photo:**

- ① Select the event, then press **[OK]**.
- ② Select the photos to edit, then press **[OPTION]**.

● **Multiple editing**

Select the item, then press the **"Yellow"** button.
(Repeat this step.)

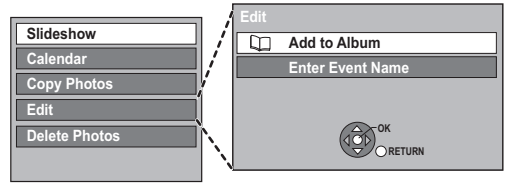
A check mark appears.

- Press the **"Yellow"** button again to cancel.

3

Select the item, then press **[OK]**.

e.g., **HDD**



Add to Album

HDD

- ① While selecting **"All"** label:
Select **"Add to Album"** in **"Edit"**, then press **[OK]**.
- ② Select the destination album, then press **[OK]**.
- ③ Press **[OK]**.

Combine Events

HDD

- ① While selecting album label and select multiple events:
Select **"Combine Events"** in **"Edit"**, then press **[OK]**.
- ② Select **"Yes"**, then press **[OK]**.

Remove from Album

HDD

- ① While selecting album label:
Select “Remove from Album” in “Edit”, then press [OK].
- ② Select “Yes”, then press [OK].

Enter Album name

HDD


- While selecting album label:
Select “Enter Album Name” in “Edit”, then press [OK].
(⇒ 70, Entering text)

Enter Event Name

- Select “Enter Event Name” in “Edit”, then press [OK].
(⇒ 70, Entering text)

Changing protection

RAM SD

- ① While selecting photo:
Select “Set up Protection” or “Cancel Protection”, then press [OK].
 - ② Select “Yes”, then press [OK].
-  appears when the protection is set.
- Even if the protection is set, the photo may be deleted by another unit.

Deleting

HDD “All” label only

RAM SD

- ① Select “Delete Photos”, then press [OK].
- ② Select “Yes”, then press [OK].

Copying photos

Selecting and copying the photos

HDD → RAM SD
RAM DVD-R CD → HDD SD
SD USB → HDD RAM

- 1
- HDD

① Press [FUNCTION MENU].

② Select “Photo” in “Playback Contents”, then press [OK].
- RAM DVD-R CD SD USB

① Insert a disc, the SD card or USB memory.

e.g., SD
- SD Card

Play Video (AVCHD)

View Photos

Copy Video (AVCHD)

Copy Video (MPEG2)

Copy New Photos

SD card is inserted.

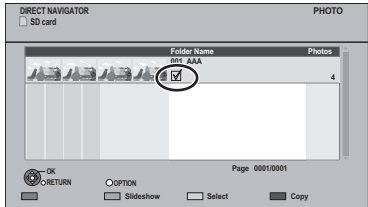
OK

RETURN
- ② Select “View Photos”, then press [OK].

- 2
- Select the event or the photo, then press the “Yellow” button.

A check mark is displayed. Repeat this step.

e.g., SD



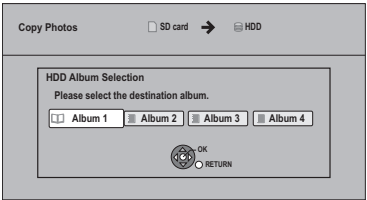
- Press the “Yellow” button again to cancel.

- 3
- Press the “Blue” button.
- 4
- Select the copying destination, then press [OK].
- 5
- When copy to HDD:

Select “Yes” or “No”, then press [OK].

• If you select “Yes”:

Select the album, then press [OK].



- You can categorise and manage the events and photos on the HDD by copying to the album. (⇒ 56)

- 6
- Select “Yes”, then press [OK].
- Copying starts.

To stop copying
Press and hold [RETURN ↵] for 3 seconds.



- The name of the copied photos will be changed.
- If the number of files/folders to be copied exceeds the maximum (⇒ 103), copying will stop partway through.

Copying automatically

RAM DVD-R CD SD USB → HDD

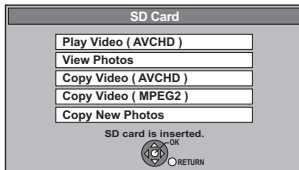
Newly added photos will automatically be copied to the HDD.

1

While stopped

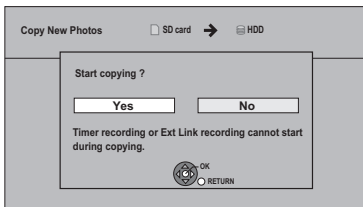
Insert a disc, an SD card or an USB memory.

e.g., SD



2

Select “Copy New Photos”, then press [OK].



3

Select “Yes”, then press [OK].

Copying starts.

4

Once the copy is completed, select “Yes” or “No”, then press [OK].

To stop copying

Press and hold [RETURN ↵] for 3 seconds.



- Photos without shooting date will be categorised using the creation date.
- If the space on the destination drive runs out or the number of files/folders to be copied exceeds the maximum (⇒ 103), copying will stop partway through.
- The name of the copied photos will be changed.

Playing music/Copying music to HDD



* **DVD-R** only

- Music CD: All tracks in the CD will be recorded.
- MP3: All tracks in the folder will be recorded.
(Cannot record track-by-track.)
- It will be recorded as 1 album to the HDD in 1 recording.

1

While stopped

■ Music CD

Insert a disc.

The unit starts accessing the Gracenote® Database and searches for the title information.



- If search results indicate that multiple titles were found

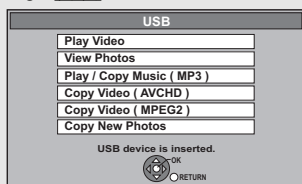
Select the appropriate title, then press [OK].

Playback will automatically start.

■ MP3

① Insert a disc or USB memory.

e.g., **USB**



- **DVD-R CD** Playback will automatically start if only MP3 is recorded.

② Select “Play / Copy Music (MP3)”, then press [OK].

Playback will start.

2

■ To copy music to HDD

① Press the “Blue” button.

② Select “Copy”, then press [OK].

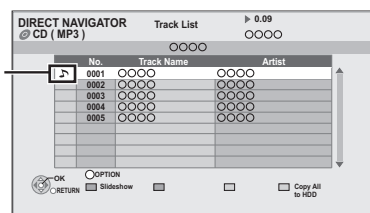
Copying starts.

To play other music (track)

Select the item, then press [OK].

e.g., **CD** (MP3)

Playing track



To stop copying

Press and hold [RETURN ↵] for 3 seconds.



- The track/artist name will be displayed if the information is contained in ID3 tag of the MP3 file.
- If there is a large amount of photo data etc. within a MP3 file, play may not be possible.
- While copying, no other operations can be performed. Timer recordings will not proceed.
- The maximum number of tracks on HDD: 40000
(Depends on the remaining capacity.)

■ About the Gracenote® Database

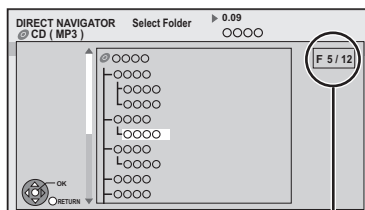
- If the title is not in the built-in database, it is possible to acquire the title automatically by connecting to the network via the Internet. (⇒ 16, 21)
- If there are music CDs with very similar title information, then the incorrect title information may be obtained. If no title suggestions are found, enter the music CD title information manually after recording to the HDD has completed.

Using the tree screen to find a folder

MP3

① While the Track List is displayed Press [OPTION].

② Select “Select Folder”, then press [OK].



Selected folder No. /Total folder

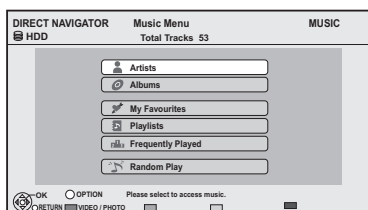
If the folder has no track, “-” is displayed as folder number.

③ Select the folder, then press [OK].

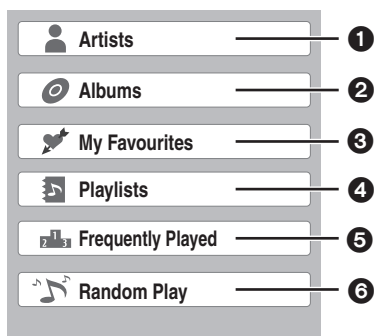
Playing music recorded on HDD

HDD

- 1 When the HDD is selected Press [FUNCTION MENU].
- 2 Select "Music" in "Playback Contents", then press [OK].



- 3 Select the item, then press [OK].



- 1 Categorised by artist
- 2 Categorised by album
- 3 Tracks registered in "My Favourites"
- 4 Tracks registered in "Playlists"
- 5 Tracks most often played recently (up to 30 tracks)
- 6 Random playback of all tracks

■ When "Artists" is selected

- 1 Select the initial of the artist.
- 2 Select the name of the artist, then press [OK].
- 3 Select the album, then press [OK].

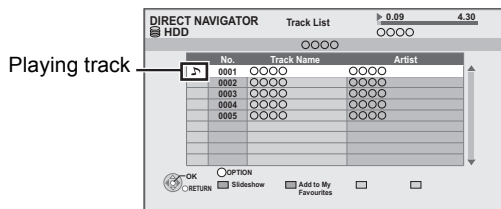
■ When "Albums" is selected

- 1 Select the initial of the album.
- 2 Select the album, then press [OK].

■ When "Playlists" is selected

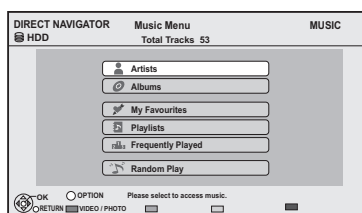
Select the playlist, then press [OK].

- 4 Select the track, then press [OK].



Switching to the VIDEO or PHOTO screens

- 1 While the DIRECT NAVIGATOR (Music Menu) screen is displayed Press the "Red" button.



- 2 Select "VIDEO" or "PHOTO", then press [OK].

Playing music/Copying music to HDD

Operations during music play

HDD DVD-R CD USB

Stop	Press [STOP ■].
Pause	Press [PAUSE II]. ● Press [PAUSE II] again or [PLAY/× 1.3 ►] to restart play.
Search	Press [SLOW/SEARCH ◀◀] or [SLOW/SEARCH ▶▶]. ● Press [PLAY/× 1.3 ►] to restart play.
Skip	During play or while paused, press [SKIP ◀◀] or [SKIP ▶▶].

Useful functions during music play

HDD DVD-R CD USB

Registering a track to the “My Favourites”

HDD

While the Track List screen is displayed

Select the track, then press the “Green” button.

- Up to 99 tracks can be registered.

Information

HDD

While the Track List screen is displayed

- ① **Select the track.**
- ② **Press [OPTION].**
- ③ **Select “Information”, then press [OK].**

Repeat Play Random

Refer to “Repeat Play” or “Random” in Play menu (⇒ 76).

Sound Effects

Refer to “Sound Effects” in Sound menu (⇒ 77).

Displaying photos (Slideshow)

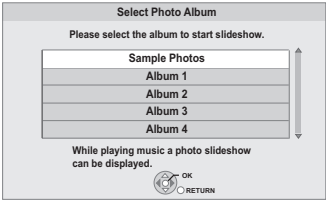
Photos stored on the “Album” of the HDD can be played back as slideshow during playback of the music.

While playing the music

Press the “Red” button.

● **To change the photos to display**

- ① While slideshow playing
Press [OPTION].
- ② Select “Select Photo Album”, then press [OK].
- ③ Select the album, then press [OK].
e.g.,



To end the slideshow

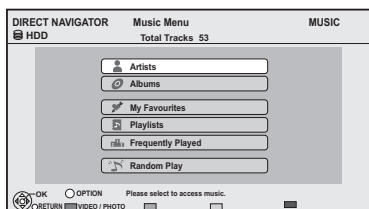
Press [RETURN ↵].

- **How to create the photo album (⇒ 58, Add to Album)**
- **To play music continuously even if the Power off link works (⇒ 72)**

Editing music/playlist

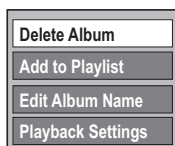


- 1 Press [FUNCTION MENU].
- 2 Select "Music" in "Playback Contents", then press [OK].



- When doing "Delete All Tracks", "Clear My Favourites" or "Clear Frequently Played" (⇒ go to step 4).

- 3 Select the item, then press [OK].
- 4 Press [OPTION].
- 5 Select the item, then press [OK].
e.g., while selecting "Albums"



Deleting all tracks

- While displaying the "Music Menu" screen
 - ① Select "Delete All Tracks", then press [OK].
 - ② Select "Yes", then press [OK].
 - ③ Select "Delete", then press [OK].
- While displaying the "Artists" screen
 - ① Select "Delete All Tracks", then press [OK].
 - ② Select "Delete", then press [OK].

Deleting albums

- While displaying the "Album View" or "Albums" screen
 - ① Select "Delete Album", then press [OK].
 - ② Select "Delete", then press [OK].

Deleting

- While displaying the "Track List" screen
 - ① Select "Delete", then press [OK].
 - ② Select "Delete", then press [OK].

Editing the name

Select "Edit Album Name", "Edit Track Name", "Edit Artist Name" or "Edit Playlist Name", then press [OK].

(⇒ 70, Entering text)

Removing all tracks

Tracks themselves are not deleted from the HDD.

- While displaying the "Playlists" screen
 - ① Select "Remove All Tracks", then press [OK].
 - ② Select "Remove", then press [OK].
- While displaying the "Music Menu" screen
 - ① Select "Clear My Favourites" or "Clear Frequently Played", then press [OK].
 - ② Select "Clear", then press [OK].

Removing tracks

- While displaying the "My Favourites", "Track List" of "Playlists" or "Frequently Played" screen
 - ① Select "Remove", then press [OK].
 - ② Select "Remove", then press [OK].

The selected track is removed.

Add to playlist

You can register your favourite albums and tracks into 10 preset playlists.

- ① Select "Add to Playlist", then press [OK].
 - ② Select the playlist, then press [OK].
- New playlist cannot be added.
 - Up to 999 tracks can be registered to each playlist.

Recording from external equipment



- It will be recorded in Standard Definition quality even if the programme is in High Definition quality.

Manual Recording

Recording media: **HDD**

Recording mode: XP, SP, LP, EP

Preparation

- Connect the Set Top Box or video equipment (⇒ 15)

- 1 While stopped**
Press [INPUT SELECT] and select the input channel, then press [OK].

e.g., If you have connected to AV2 input terminals, select "AV2".

- 2 Press [REC MODE] to select the recording mode.**

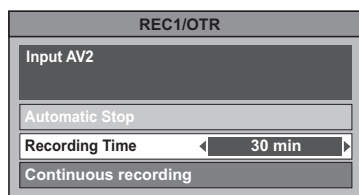
- 3 If recording broadcasts from Set Top Box:**
Select the channel on the Set Top Box.

If recording from other video equipment:
Start play on the video equipment.

- 4 Press [REC ●].**

Recording starts.

- 5 Set the time to record. (⇒ 29)**



To skip unwanted parts

Press [PAUSE ■■] to pause recording.

- Press [PAUSE ■■] again to restart recording.

To stop recording

Press [STOP ■].

Flexible Recording via AV input

Recording media: **HDD** **RAM** **DVD-R***

DVD-RW **+R*** **+RW**

Recording mode: **FR**

* This function is not available with DVD-R DL and +R DL.

Preparation

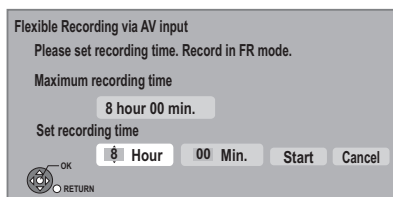
- Connect the Set Top Box or video equipment (⇒ 15)

- 1 While stopped**
Press [INPUT SELECT] and select the input channel, then press [OK].

e.g., If you have connected to AV2 input terminals, select "AV2".

- 2 Press [FUNCTION MENU].**

- 3 Select "Flexible Recording via AV input" in "Others", then press [OK].**



- 4 Select "Hour" and "Min." and set the recording time.**

- 5 Start play on the other equipment.**

- 6 Select "Start", then press [OK].**

To stop recording partway

Press [STOP ■].

To show the remaining time

Press [STATUS ⓘ].

Linked timer recording (SKY Digital STB, etc.)—EXT LINK

Recording media: **HDD**

Recording mode: XP, SP, LP, EP

- Connect the equipment with AV2 input terminal (⇒ 15).
- Set "AV2 Input" and "Ext Link" (⇒ 85).
- Make timer programming on the external equipment.

Press [EXT LINK].

- "EXT-L" lights on the unit's display

To cancel the External link

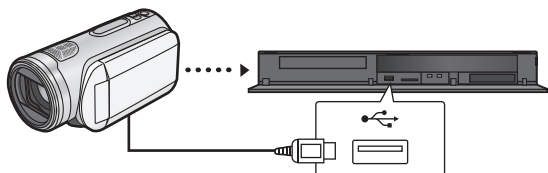
- 1 Turn on this unit.
- 2 Press [EXT LINK] to stop recording or to cancel linked timer recording standby. ("EXT-L" disappears.)



- It will be recorded in standard definition quality even if the programme is in high definition.
- During Ext Link Standby mode or recording, you cannot select external input other than AV2.
- This function does not work when "TV System" is set to "NTSC" (⇒ 84).
- This function does not work while recording 2 programmes simultaneously with timer recording.
- The beginnings of recordings may not be recorded correctly in some cases.
- Programmes are recorded as one title on this unit when the end time of the earlier timer recording and the start time of the later timer recording are close to each other.
To divide the titles, go to "Dividing title" (⇒ 45).

Copying the HD Video or the SD Video

e.g., Connecting to the Panasonic video camera



USB connection cable
(specified cable such as accessories of the USB equipment)

Copying HD Video (AVCHD format)

It is possible to copy the HD video (AVCHD format) recorded on the Panasonic video camera, etc. to the HDD or disc.

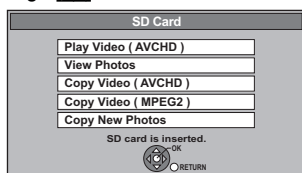
RAM DVD-R DVD-RW +R +RW → HDD

SD USB, video camera, etc. → **HDD**

- 1 ■ **From video equipment**
Connect the video camera.
 - Make the video camera ready for data transfer on the video camera.

- **From a disc or an SD card**
Insert a disc or SD card.

e.g., **SD**



- 2 Select “Copy Video (AVCHD)”, then press [OK].
- 3 Select the title, then press the “Yellow” button.
A check mark is displayed. Repeat this step.
• Press the “Yellow” button again to cancel.
(All the recordings on the same date become a title.)
- 4 Press [OK].
- 5 Select “Start”, then press [OK].
• It may take time for the copying to start.

To stop copying

Press and hold [RETURN ↵] for 3 seconds.

➤ Copying HD Video (AVCHD format) from HDD (⇒ 54)



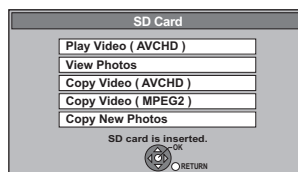
- Copy cannot be executed while recording or playback.
- An AVCHD title with 100 or more scenes will be divided into titles every 99th scene and copied.

Copying SD Video (MPEG2 format)

It is possible to copy the SD video (MPEG2 format) recorded on the Panasonic video camera, etc. to the HDD or disc.

SD USB, video camera, etc. → **HDD RAM**

- 1 ■ **From video equipment**
Connect the video camera.
 - Select the appropriate mode that makes the video camera ready for data transfer on the video camera.
- **From an SD card**
Insert an SD card.
e.g.,



- 2 Select “Copy Video (MPEG2)”, then press [OK].
- 3 Select “Start Copying”, then press [OK].
• To change the copy destination and the titles to copy (⇒ 50)
- 4 Select “Yes”, then press [OK] to start copying.

To stop copying

Press and hold [RETURN ↵] for 3 seconds.



- You cannot playback SD Video on an SD card or in the HDD of the Panasonic video camera, etc. with this unit. You must copy the files to the HDD or a DVD-RAM.
- You cannot playback or record while copying SD Video.

Media management



- 1 Press [FUNCTION MENU].
- 2 Select "Others", then press [OK].
- 3 Select the item, then press [OK].
 - Selectable items will change depending on the selected drive.

Providing a name for a disc

RAM **DVD-R** **DVD-RW** **+R** **+RW**

Select "Disc Name", then press [OK].

(⇒ 70, Entering text)

- The disc name is displayed in the DVD Management window.
- **DVD-R** **DVD-RW** **+R** With a finalised disc, the name is displayed on the Top Menu.
- **+RW** The disc name is displayed only if you play the disc on other equipment after creating Top Menu.



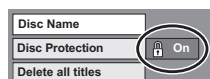
- Do not perform this operation before copying HD Video (AVCHD format) to DVD-R or DVD-R DL. (⇒ 54)

Setting the protection

RAM

- 1 Select "Disc Protection", then press [OK].
- 2 Select "Yes", then press [OK].

e.g., when the disc is write-protected



To release the protection

Repeat steps 1–2.

- The screen icon will be switched to "Off".



- When using a cartridge disc, you can also set the protection of cartridge (⇒ 8, Cartridge-protection).

Delete all titles

RAM

- 1 Select "Delete all titles", then press [OK].
- 2 Select "Yes", then press [OK].
- 3 Select "Start", then press [OK].
 - A message appears when finished.
- 4 Press [OK].



- Photo data or computer data cannot be deleted.

Format

RAM **DVD-RW** **+RW** **SD**

+R (New disc only)

Formatting deletes all contents (including computer data), and they cannot be restored. Check carefully before proceeding.

The contents are deleted when you format a disc or card even if you have set protection.

- 1 Select "Format Disc" or "Format Card", then press [OK].
- 2 Select "Yes", then press [OK].
- 3 Select "Start", then press [OK].
- 4 Press [OK].

RAM To stop formatting

Press [RETURN ↵].

- You can cancel formatting if it takes more than 2 minutes. The disc must be reformatted if you do this.



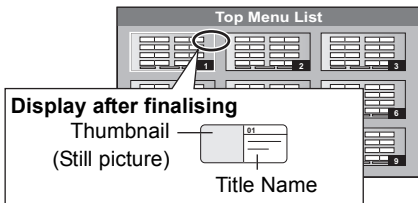
- **RAM** Formatting normally takes a few minutes; however, it may take up to a maximum of 70 minutes.
- **Do not disconnect the AC mains lead while formatting.** This can render the disc or the card unusable.
- When a disc or card has been formatted using this unit, it may not be possible to use it on any other equipment.
- It will become DVD Video format when a DVD-RW recorded in DVD Video Recording format is formatted with this unit.

Top Menu

DVD-R DVD-RW +R +RW

You can select the background for DVD-Video Top Menu.

- ① Select “Top Menu”, then press [OK].
- ② Select the background, then press [OK].



- You cannot cancel finalising.
- Finalising takes up to 15 minutes (Up to 60 minutes in case of DVD-R DL and +R DL).
- **Do not disconnect the AC mains lead while finalising.** This can render the disc unusable.
- When finalising a high-speed recording compatible disc, it may take longer than displayed on the confirmation screen (approximately four times longer).
- You cannot finalise discs recorded on other manufacturer's equipment.
- **DVD-R DVD-RW +R** If you finalise discs recorded on Panasonic equipment other than this unit, the background selected as “Top Menu” may not be displayed.
- Discs finalised on this unit may not be playable on other players due to the condition of the recording.

Create Top Menu

+RW

You can create Top Menu for displaying on other equipment.

Make selections from “Top Menu” and “Auto-Play Select” (⇒ left) before creating Top Menu.

- ① Select “Create Top Menu”, then press [OK].
- ② Select “Yes”, then press [OK].
- ③ Select “Start”, then press [OK].
 - Creating Top Menu starts. You cannot cancel creating.
 - Creating Top Menu can take a few minutes.
- ④ Press [OK].



- You cannot use the Top Menu for playing on this unit.
- The created menu is deleted when you record or edit the disc.

Auto-Play Select

DVD-R DVD-RW +R +RW

You can select whether to show the Top Menu after finalising or creating Top Menu (**+RW**).

- ① Select “Auto-Play Select”, then press [OK].
- ② Select “Top Menu” or “Title 1”, then press [OK].

Top Menu	The Top Menu appears first.
Title 1	The disc content is played without displaying the Top Menu.

Finalise

DVD-R DVD-RW +R

You can play the disc on compatible DVD players by finalising it on the unit.

- ① Select “Finalise”, then press [OK].
- ② Select “Yes”, then press [OK].
- ③ Select “Start”, then press [OK].
- ④ Press [OK].

After finalising

- **DVD-R +R** The disc becomes play-only and you can no longer record or edit.
- **DVD-RW** You can record and edit the disc after formatting (⇒ 68).

Entering text

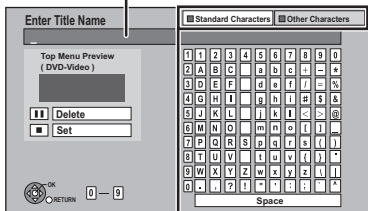
Preparation

- Show the Enter Title Name screen.

1 Select a character, then press [OK].

Repeat this step to enter other characters.

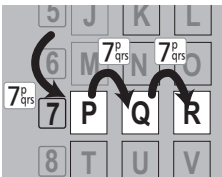
Name field: shows the text you have entered



Press the “Red” button or “Green” button to select character type and press [OK].

- To delete a character
Select the character in the name field, then press [PAUSE ■■].
- To enter characters with number buttons
e.g., entering the letter “R”

- ① Press [7] to move to the 7th row.
- ② Press [7] twice to highlight “R”.
- ③ Press [OK].



2 Press [STOP ■] (Set).

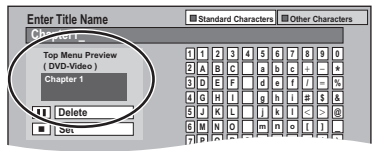
“Writing...” appears then the screen returns to the DIRECT NAVIGATOR screen and so on.

To end partway

Press [RETURN ↵].
Text is not added.

For your reference

The name of the DVD-Video that will be displayed in the Top Menu after finalisation is previewed.



- The maximum number of characters depends on the media.
- If a name is long, parts of it may not be shown in some screens.

Enjoying VIERA CAST

You can access a selection of Internet services from the Home screen with VIERA CAST, such as YouTube, Picasa Web Albums. (Current as of May 2011)

Preparation

- Network connection (⇒ 16)
- Network Easy Setting (⇒ 21, 85)

1 Press [VIERA CAST].

The message is displayed. Please read these instructions carefully and then press [OK].

2 Select the item, then press [OK].

- Operable buttons:
[▲, ▼, ◀, ▶], [OK], [RETURN ⇨], coloured buttons and number buttons.

VIERA CAST Home screen

e.g.,



Images are for illustration purpose, contents may change without notice.

To exit from VIERA CAST

Press [EXIT].



- When playing content from a disc, SD card or USB device VIERA CAST cannot be accessed.
- In the following cases, settings are possible using "Internet Content Settings" (⇒ 85)
 - When restricting the use of VIERA CAST.
 - When the audio is distorted.
- If using slow Internet connection, the video may not be displayed correctly. A high-speed Internet service with a speed of at least 6 Mbps is recommended.
- Be sure to update the software (firmware) when a software (firmware) update notice is displayed on the screen.
If the software (firmware) is not updated, you will not be able to use the VIERA CAST function.
- VIERA CAST home screen is subject to change without notice.
- The services through VIERA CAST are operated by their respective service providers, and service may be discontinued either temporarily or permanently without notice. Therefore, Panasonic will make no warranty for the content or the continuity of the services.
- All features of websites or content of the service may not be available.
- Some contents may be inappropriate for some viewers.
- Some contents of VIERA CAST may only be available for specific countries and may be presented in specific languages.
- If timer recording starts, VIERA CAST will stop.

VIERA Link/Q Link functions

What is VIERA Link “HDAVI Control”?

VIERA Link “HDAVI Control” is a convenient function that offers linked operations of this unit, and a Panasonic TV (VIERA) or receiver under “HDAVI Control”. You can use this function by connecting the equipment with the HDMI cable. See the operating instructions for connected equipment for operational details.

Preparation

- 1 Connect this unit to your TV or receiver using an HDMI cable. (⇒ 14)
- 2 Set “VIERA Link” to “On” (⇒ 85). (The default setting is “On”.)
- 3 Set the “HDAVI Control” operations on the connected equipment (e.g., TV).
 - **Set the input channel on the VIERA to suit the terminal to be used as “HDAVI Control”.**
- 4 Turn on all “HDAVI Control” compatible equipment, then select this unit’s input channel on the connected TV so that the “HDAVI Control” function works properly.
 - **Also when the connection or settings are changed, repeat this procedure.**

What is Q Link?

Q Link is a convenient function that offers linked operations of this unit and a Panasonic TV. You can use this function by connecting the equipment with a fully wired 21-pin Scart cable.

Preparation

Connect this unit to your TV with a fully wired 21-pin Scart cable (⇒ 16).

For your reference

The following systems from other manufacturers have similar functions to Q Link from Panasonic.

For details, refer to your TV’s operating instructions or consult your dealer.

- Q Link (registered trademark of Panasonic)
- DATA LOGIC (registered trademark of Metz)
- Easy Link (registered trademark of Philips)
- Megalogic (registered trademark of Grundig)
- SMARTLINK (registered trademark of Sony)

Automatic input switching Power on link

VIERA Link Q Link

When the following operations are performed, the TV will automatically switch the input channel and display the corresponding action. Additionally when the TV is off, the TV will automatically turn on.

- When play starts on the unit
- When an action that uses DIRECT NAVIGATOR or FUNCTION MENU etc, is performed

Power off link

VIERA Link Q Link

When you set the TV to standby mode, the unit is also automatically set to standby mode.

- Power off link function does not work when recording, copying etc.

Playing music continuously even after turning off power to the TV*¹

VIERA Link

The following operations make it possible to keep the power of the unit on and to play music continuously.

When the unit is directly connected to an amplifier/receiver.

- ① **While playing music**
Press [OPTION].
- ② **Select “TV Power Off”, then press [OK].**

- Sound may be discontinued for several seconds when the power to the TV is turned off.

PAUSE LIVE TV*²

VIERA Link

You can operate this unit with the TV remote control.

Refer to “PAUSE LIVE TV” on page 27.

Direct TV Recording*²

VIERA Link Q Link

This function allows you to immediately start recording the programme that you are viewing on the TV.

Refer to the TV operating instructions for operation.

- This unit will record the programmes in DR mode once, and then automatically convert to the selected recording mode while this unit is in standby. (⇒ 28)

Easy control only with VIERA remote control^{※1}

VIERA Link

You can operate this unit using the TV remote control.

Refer to the operating instructions of the TV about the buttons that you can use.



- This unit supports "HDAVI Control 5" function.
"HDAVI Control 5" is the newest standard (current as of December, 2010) for Panasonic HDAVI Control compatible equipment. This standard is compatible with Panasonic's conventional HDAVI equipment. Please refer to individual manuals for other manufacturers' equipment supporting VIERA Link function.
- VIERA Link "HDAVI Control", based on the control functions provided by HDMI which is an industry standard known as HDMI CEC (Consumer Electronics Control), is a unique function that we have developed and added. As such, its operation with other manufacturers' equipment that supports HDMI CEC cannot be guaranteed.
- These functions may not work normally depending on the equipment condition.
About "HDAVI Control" function, read the manual of the connected equipment (e.g., TV) too.
- Use the remote control supplied with this unit if you cannot operate this unit using buttons on the TV remote control.
- The operation of this unit may be interrupted when you press incompatible buttons on the TV remote control.

Using the OPTION menu

- ① Press [OPTION] on the TV remote control.
- ② Select the item, then press [OK].

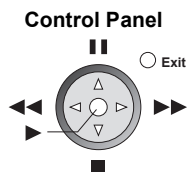
e.g.,



■ Control Panel

Using the Control Panel, you can operate with the TV remote control.

Select "Control Panel" from the OPTION menu.



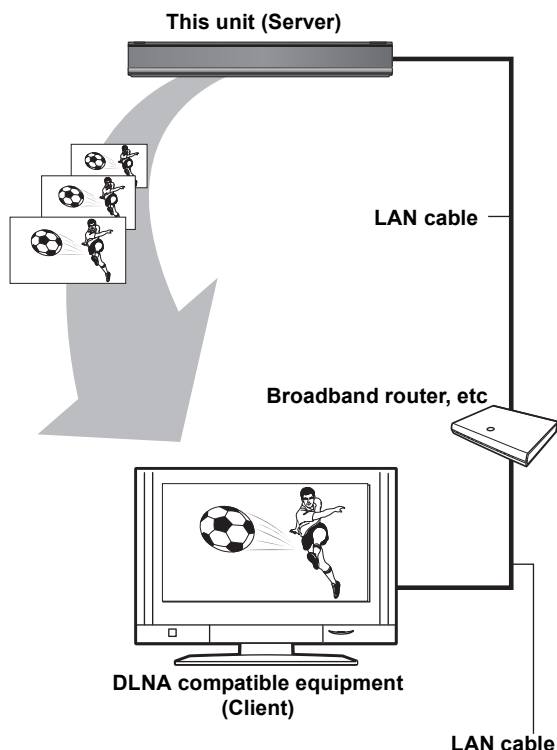
^{※1} This function is available with the TV that supports "HDAVI Control 2" or later.

^{※2} This function is available with the TV that supports "HDAVI Control 3" or later.

Playing contents from other equipment (Server)

You can enjoy the video and photos saved on the HDD of this unit on DLNA (Client) compatible equipment connected via a network.

- The titles with remote access restriction (e.g., copy restriction) signals sent from broadcasters are not available for this function.
 - You cannot playback music from the playback equipment (Client).
- e.g.,



For details regarding the connection and operation of equipment connected via a network, refer to their respective operating instructions.

Preparation

- Network connection (⇒ 16)
- Network Easy Setting (⇒ 21, 85)
- When DLNA (Server) Function is deactivated, make the settings. (⇒ 86, Home Network (DLNA) Server Settings)

1 Operate the playback equipment (Client) to display the list of titles on this unit.

- Refer to their respective operating instructions.

2 Select the item to playback (folder), then press [OK].

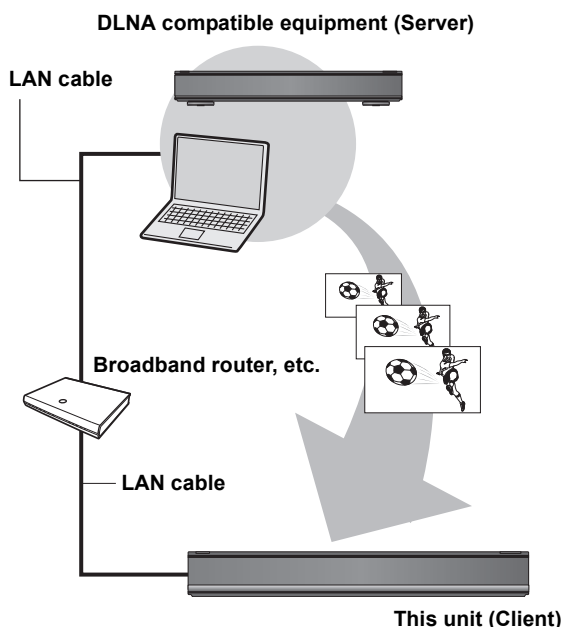


- Ensure that the router for your home network has adequate security system to prevent unauthorized access.
- The DLNA compatible device that is to be connected to the unit should be connected to the same hub or broadband router as the unit.
- Files not on the HDD cannot be played back.
- Editing is not possible.
- Following titles can not be played back:
 - A title with remote access restriction
 - A title with copy protection (Copying is prohibited) (⇒ 13)
 - A title currently being recorded on this unit
 - A title with audio only format
 - A title with incompatible format
 - A title is encrypted
- Playback via DLNA compatible equipment may not be performed when this unit is in the following conditions:
 - While simultaneously recording 2 programmes
 - While simultaneously performing High speed copy and recording
 - While displaying the Setup menu
 - While executing functions using a network, such as "VIERA CAST"
- There may be some video that cannot be played back on DLNA compatible equipment depending on the equipment.
- You cannot playback simultaneously from 2 or more items of DLNA compatible equipment.

Playing contents on other equipment (Client)

You can enjoy viewing video, photos and music saved on a DLNA Certified media server (such as a PC with Windows 7 installed etc.) connected via a network with this unit. You also can enjoy viewing them with Panasonic DLNA compatible recorders (DIGA).

e.g.,



Preparation

- Network connection (⇒ 16)
- Network Easy Setting (⇒ 21, 85)
- Perform Home Network settings of the DLNA compatible equipment (Server).
- **When connected to a PC with Windows 7 installed**
Add the contents and folder to the Windows Media® Player library.
Playlist of Windows Media® Player can play back only the contents that are stored in the libraries.
Regarding setting method of Windows 7 refer to its instructions or help.
- **When connected to a Panasonic DLNA compatible recorder (DIGA)**
When a message requesting operation of the equipment to be registered is displayed, perform steps 1–4.
- The countries where DIGA is available are limited.
Refer to following site for availability.
<http://panasonic.jp/support/global/cs/>

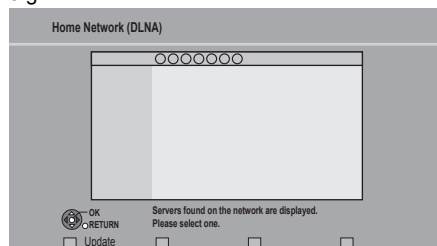
For details about the setting and operation method of connected equipment, and compatible equipment, refer to the following Website and the operating instructions for each item of equipment.
<http://panasonic.jp/support/global/cs/>
 (This site is in English only.)

1 Press [FUNCTION MENU].

2 Select “Home Network (DLNA)” in “Network”, then press [OK].

- A list of equipment connected via the network is displayed.
- This list can be updated by pressing the “Red” button.

e.g.



3 Select the equipment to playback the contents, then press [OK].

4 Select the item to playback (folder), then press [OK].

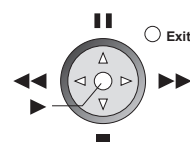
- Menu structure will be different depending on the equipment connected to this unit. Select the contents by repeating the operation.
- Convenient functions can be used by pressing [OPTION] depending on the contents.

Control Panel

Control Panel is displayed once the playback starts. Operation can be performed with [▲, ▼, ◀, ▶], [OK] and [EXIT].

- Press [OK] if the Control Panel is not displayed.
- Press [RETURN ↵] to hide the Control Panel.

e.g.



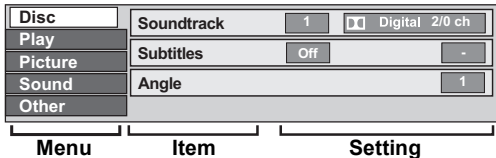
- You may not be able to use the Control Panel even if you use the Panasonic DLNA compatible equipment.
- Depending on the contents and the connected equipment, playback may not be possible.
- Items displayed in grey on the display cannot be played back by this unit.
- Depending on the performance of the connected PC, video frames may be dropped during playback, or video may not playback at all.

Playback menu

Common procedures

① Press [DISPLAY].

e.g.,



- The menu is not displayed when playing photos.
- ② Select the menu, then press [▶] (right).
- ③ Select the item, then press [▶] (right).
- ④ Select the setting.
- Some items can be changed by pressing [OK].

To clear the Playback menu

Press [EXIT].

Depending on the condition of the unit (playing, stopped, etc.) and media contents, there may be some items that you cannot select or change.

Disc menu—Setting the disc content

Video

The original video recording method (MPEG-4 AVC etc.) appears.

Soundtrack*

Show or change the soundtrack.

Subtitles*

Turn the subtitle on/off, and change the language depending on the media.

Multi Audio

Switch in the case of multiple audio.

Subtitle Language

Select the subtitle language in the case of multiple languages.

Angle*

Change the number to select an angle.

Audio Channel

Change audio (LR/L/R) during playback.

* With some discs, you may only be able to make changes using the menus (⇒ 36) on the disc.

Audio attribute

LPCM/ <input type="checkbox"/> Digital/ <input type="checkbox"/> Digital+/ DTS/MPEG:	Signal type
k (kHz):	Sampling frequency
b (bit):	Number of bits
ch (channel):	Number of channels

Language

ENG: English	DAN: Danish	THA: Thai
FRA: French	POR: Portuguese	POL: Polish
DEU: German	RUS: Russian	CES: Czech
ITA: Italian	JPN: Japanese	SLK: Slovak
ESP: Spanish	CHI: Chinese	HUN: Hungarian
NLD: Dutch	KOR: Korean	FIN: Finnish
SVE: Swedish	MAL: Malay	*: Others
NOR: Norwegian	VIE: Vietnamese	

Play menu—Change the play sequence

Repeat Play

(Only when the elapsed time is being displayed on the unit's display.)

Select the item which you want to repeat. The items displayed differ depending on the type of media.

Select "Off" to cancel.

Random

(Only when playing music)

Select whether to play random or not.

Picture menu—Change the picture quality

Mode

Select the picture quality mode during play.

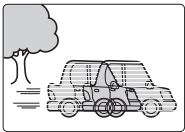
Normal	Default setting
Soft	Soft picture with fewer video artifacts
Fine	Details are sharper
Cinema	Mellows movies, enhances detail in dark scenes.
Cartoon	A mode suitable for viewing animations.

Advanced Settings

HD optimizer	It will compensate the mosaic noise in the video and haze around the characters precisely.
Chroma Process	You can enjoy high definition and full texture video by processing the HDMI colour signals in high precision during playback.
Detail Clarity	The picture becomes sharp and detailed.
Super Resolution	Standard picture quality video is corrected to sharp and crisp picture quality when it is output as 1080i/1080p from the HDMI terminal.

Progressive

Select the method of conversion for progressive output to suit the type of title being played. (⇒ 109)

Auto	Automatically detects the film and video content, and appropriately converts it.
Video	Select when using “Auto”, and the content is distorted.
Film	Select this if the edges of the film content appear jagged or rough when “Auto” is selected. However, if the video content is distorted as shown in the illustration to the right, then select “Auto”. <div data-bbox="455 1178 641 1309"></div>

Sound menu—Change the sound effect

Sound Effects

- This function is effective when “Digital Audio Output” is set to “PCM”. (⇒ 83)

Re-master 1	(Discs recorded at 48 kHz or less)
Re-master 2	Sound becomes more natural by adding higher frequency signals not recorded on the track.

Dialogue Enhancer

The volume of the centre channel is raised to make dialogue easier to hear.

Other menu—Change the display position

Position

Change where this menu screen appears on your TV.

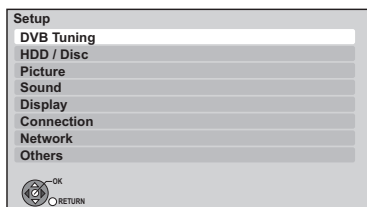
Changing the unit's settings

You can change the unit's settings using the Setup menu.

- The settings remain intact even if you switch the unit to standby.

Common procedures

- 1 Press [FUNCTION MENU].
- 2 Select "Setup" in "Others", then press [OK].



- 3 Select the menu, then press [OK].

- 4 Select the item, then press [OK].

- 5 Select the option, then press [OK].

- Follow the instruction on the screen if the operation method is different.
- Depending on the connection or the status of this unit some items cannot be selected or changed.

About the PIN

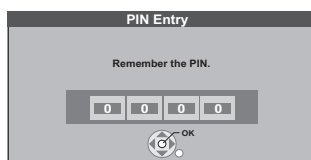
PIN is required to change the following settings. Enter the 4-digit PIN following the on-screen instructions.

- The PIN is common for the following items.
 - DVD-Video Parental Control
 - Lock (Internet Content Settings)

PIN can be changed via the "PIN Entry" in "Others". (⇒ 87)

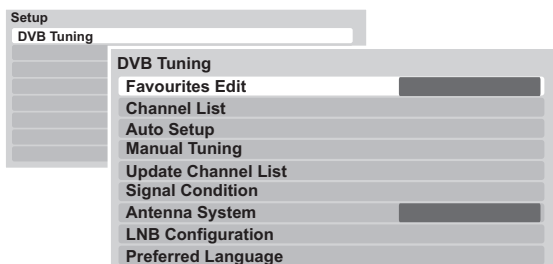
- ① Select the number, then press [▶] (right).
 - You can also use the number buttons.
- ② Repeat step ① to enter 4-digit PIN.
- ③ Press [OK] to confirm.

e.g., PIN Entry



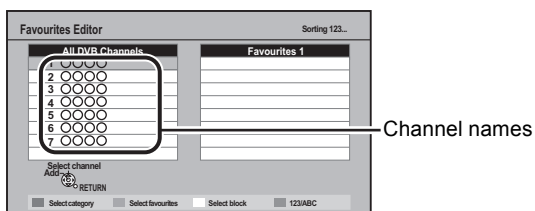
- Make a note of PIN in case you forget it.

DVB Tuning



Favourites Edit

You can create four favourites of channels for making viewing and recording easier.



After editing as follows, save the Favourites.

Press [RETURN ↵], then press [OK].

To select the other Favourites list

Press the "Green" button.

To add channels to the Favourites list

- ① Select the channel in the "All DVB Channels" column, then press [OK]. Repeat this step.
 - "Red" : Select the Category.
 - "Yellow" : Add continuous block of channels to the list at once.
 - Press [▲, ▼] to make the block, then press [OK].
 - "Blue" : Change the sorting mode.

To change the order of the channels list

- ① Select the channel in the "Favourites" column to move, then press the "Green" button.
- ② Select the new position, then press the "Green" button.

To delete channels

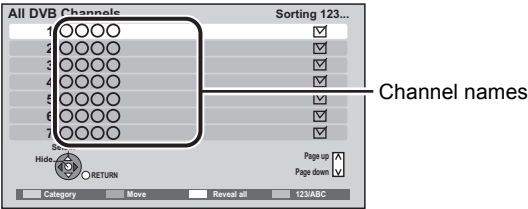
- ① Select the channel in the "Favourites" column, then press [OK].
 - "Yellow": Delete all channels.

To change the name of the Favourites list

- ① Press the "Red" button in the "Favourites" column.
- ② Press [▲, ▼, ◀, ▶] to select a character, then press [OK].
 - Repeat this step to enter other characters.
 - "Red": Delete a character.
 - "Blue": Delete all characters.
- ③ Press [RETURN ↵].

■ Channel List

You can edit the Channel List.



●To skip unwanted channels

- ① Select the channel.
- ② Press [OK].
 - The check mark is removed.
 - “Red” : Change the Category.
 - “Yellow” : Clear the all skip setting.
 - “Blue” : Change the sorting mode.

●To change the channel number assignment

- ① Select the channel, then press the “Green” button.
- ② Press [▲, ▼] to reassign the channel number.
- ③ Press [OK].
 - If another channel is already assigned to the channel number, the two channels will be switched.

■ Auto Setup

You can restart the Easy Setting. (⇒ 20)

Select the Auto Setup method.

Search by selected satellite	Satellite is selected and transponders are searched for channels.
Search all satellites	All satellites and transponders are searched for channels.

Select “Yes”, then press [OK].

■ Manual Tuning

You can add each new channels manually that the Auto Setup could not complete successfully.

■ Update Channel List

You can update channels to the latest one.

- ① Select the method and settings.

●Search Mode

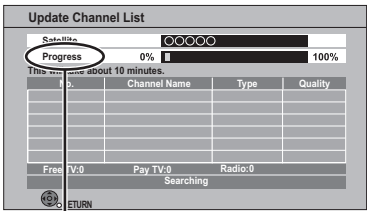
All Channels	Search for all channels.
Free Channels	Search for free channels only.

●Scan Mode

Quick	In this mode, scanning takes place in a short period of time.
Full	In this mode, the scanning is thorough but takes more time.

- ② Press [OK].

The unit starts searching for newly available satellite digital channels.



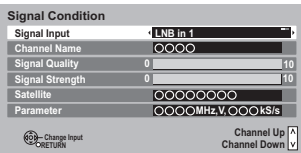
“Finished” is displayed when the search is finished.
Press [RETURN ↵].

Changing the unit's settings

■ Signal Condition

You can check the quality and strength of signals.

- Press [◀, ▶] to select the LNB.
 - Press [CH ▲ ▼] to select the channel.
- e.g.,



Signal Quality

Red bar	The signal quality is bad.
Yellow bar	The signal quality is poor.
Green bar	The signal quality is good.

Signal Strength

0	Signal strength is 0%.
10	Signal strength is 100%.

- When the signal is too strong (red bar), reduce the signal amplification at your aerial.
- When the signal is weak:
 - adjust the position and direction of the dish.
 - check that the current digital broadcast channel is correctly broadcasting.

■ Antenna System

You can receive several satellites if you have DiSEqC control antenna system or single cable router.

- ① Select "Antenna System".
- ② Press [◀, ▶] to select antenna system.

One LNB	Compatible with Single LNB.
MiniDiSEqC	Up to 2 LNBs can be controlled.
DiSEqC1.0	Up to 4 LNBs can be controlled.
Single Cable	Compatible with single cable router.

- This unit supports DiSEqC Version 1.0.

■ LNB Configuration

You can set LNB setting and User Band when necessary.

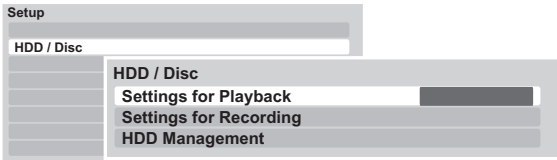
- If you do not know the connected satellite, select "No Satellite" in "Satellite". (Available satellite will be searched in Auto Setup.)
- If you select "User defined" in "Satellite", set "Test Transponder Frequency" manually.

■ Preferred Language

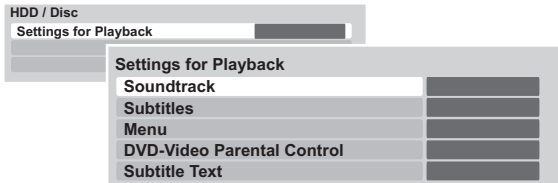
Select the language for multi broadcast.

If the selected language is not available, then the original language will be selected.

HDD / Disc



■ Settings for Playback



➤ Soundtrack

Select the audio language.

- If "Original" is selected, the original language of each disc will be selected.
- Enter a code with the number buttons when you select "Other * * * *". (⇒ 88, Language code list)

➤ Subtitles

Select the language for subtitle.

- If "Automatic" is selected and the language selected for "Soundtrack" is not available, subtitles of that language will automatically appear if available on that disc.
- Enter a code with the number buttons when you select "Other * * * *". (⇒ 88, Language code list)

➤ Menu

Select the language for disc menus.

- Enter a code with the number buttons when you select "Other * * * *". (⇒ 88, Language code list)

➤ DVD-Video Parental Control

Set a rating level to limit DVD-Video play.

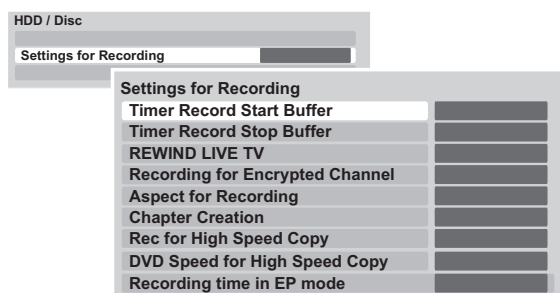
- Follow the on-screen instructions.
- PIN is required to change. (⇒ 78)

➤ Subtitle Text

Select the language for DivX and MKV subtitles text (⇒ 99).

- This item is displayed only after playing back a DivX or MKV file with subtitle text.

■ Settings for Recording



➤ Timer Record Start Buffer

This function sets the timer recording to start earlier than the TV Guide time.

➤ Timer Record Stop Buffer

This function sets the timer recording to stop later than the TV Guide time.

➤ REWIND LIVE TV

Turn on/off the REWIND LIVE TV function.

- When "Automatic Standby" is set to "Off" (⇒ 86), "On" cannot be selected.

➤ Recording for Encrypted Channel

Limitation for record/view/play of the encrypted programme will change. (⇒ 31)

- "Automatic" and "Encrypt Recording" cannot be selected in the following cases.
 - "One cable" has been selected in "Easy Setting" or "Auto Setup". (⇒ 20, 79)
 - "Single Cable" has been selected in "Antenna System" and one user band is disabled. (⇒ 23, 80)

➤ Aspect for Recording

Sets the aspect ratio when recording or copying except in DR mode.

- If "Automatic" is selected, the title will be recorded with the original aspect ratio at the time when recording started (including when recording started at a commercial, etc.).
- In the following cases, the programme will be recorded with the original aspect ratio.
 - **HDD-R** When the recording mode is set to "XP", "SP", "LP", "EP" or "FR" with the "Rec for High Speed Copy" set to "Off"
- In the following cases, aspect is fixed to 4:3.
 - **DVD-R** **DVD-RW** When the recording mode is set to "EP" or "FR (recordings 5 hours or longer)" mode.
 - When recording to a +R, +R DL and +RW.

➤ Chapter Creation

HDD

Set the Chapter Creation method.

- Even if "Automatic" is selected, depending on the programme to be recorded, the chapter may not be created correctly.

➤ Rec for High Speed Copy

You can copy titles to DVD in high speed mode, if you set to "On" before recording a programme.

- This setting is valid for the following cases:
 - Recording from external equipment
 - Copying from a finalised DVD-Video disc
- If "On" is selected, the following restrictions are applied to recorded titles.
 - The settings in "Aspect for Recording" (⇒ above) and in "Bilingual Audio Selection" (⇒ 83) are applied to titles.
 - You cannot switch the audio when watching a programme via AV input.

➤ DVD Speed for High Speed Copy

Select the speed of high-speed copying.

If "Normal (Silent)" is selected, the time required for copying will double (approximately).

➤ Recording time in EP mode

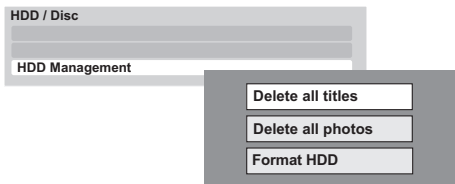
Select the maximum number of hours for recording in EP mode (⇒ 105, Recording modes and approximate recording times).

- When recording to DVD-RAM using "8 hours" mode, it may not be possible to play on DVD players.

Changing the unit's settings

■ HDD Management

Press and hold [OK] for 3 seconds to show the following settings.



➤ Delete all titles

- Delete all titles (video) on the HDD.
- Delete does not work if one or more titles are protected.

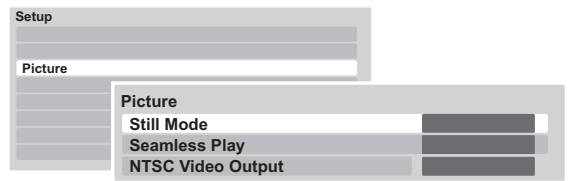
➤ Delete all photos

Delete all photos on the HDD.

➤ Format HDD

Formatting deletes all contents, and they cannot be restored. Check carefully before proceeding.

Picture




■ Still Mode

Select the type of picture shown when you pause play (⇒ 108, Frames and fields).

Automatic	
Field	Select if jittering occurs when “Automatic” is selected. (The picture is coarser.)
Frame	Select if small text or fine patterns cannot be seen clearly when “Automatic” is selected. (The picture is clearer and finer.)

■ Seamless Play

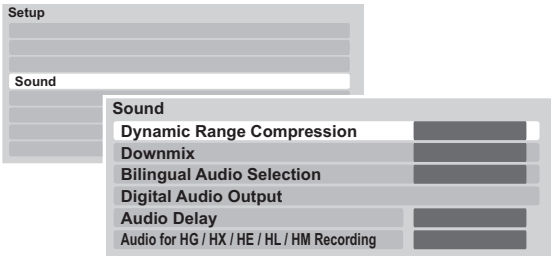
Select the play mode between playlist chapter segments and partially deleted titles.

- If you set “On” the chapters in playlists are played seamlessly. This does not work when there are several audio types included on the playlist and when using Quick View (PLAY×1.3).
- This function cannot be used on encrypted titles ().

■ NTSC Video Output

Select how to output the NTSC image.

Sound



Dynamic Range Compression

DVD-V

Change the dynamic range for late night viewing.

Downmix

Select the downmix system of multi-channel to 2-channels sound.

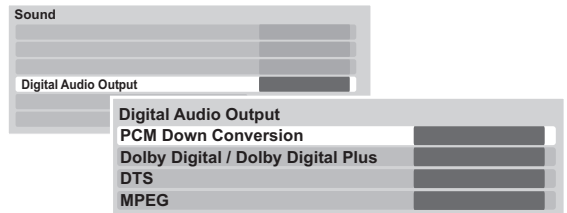
- Select "Surround encoded", when the connected equipment supports the virtual surround function.
- There is no effect on "Bitstream" via HDMI AV OUT and DIGITAL AUDIO OUT terminal.
- The audio will be output in "Stereo" in the following cases.
 - AVCHD playback

Bilingual Audio Selection

Select whether to record the audio type ("M1" or "M2") when:

- File Conversion (⇒ 46)
- Copying to a DVD-R, DVD-RW, +R and +RW.
- "Rec for High Speed Copy" is enabled. (⇒ 81)

Digital Audio Output



PCM Down Conversion

Select how to output audio with a sampling frequency of 96 kHz.

- It will be converted to 48 kHz regardless of the setting in the following cases.
 - The signals have a sampling frequency of over 96 kHz.
 - The disc has copy protection.
- If "Off" is selected, signals are output as 96 kHz
- If "On" is selected, signals are converted to 48 kHz. (Choose when the connected equipment cannot process signals with a sampling frequency of 96 kHz.)

Dolby Digital / Dolby Digital Plus

DTS

MPEG

Select the audio signal to output.

- Select "PCM" when the connected equipment cannot decode the respective audio format.
- Not making the proper settings may result in noise.

Audio Delay

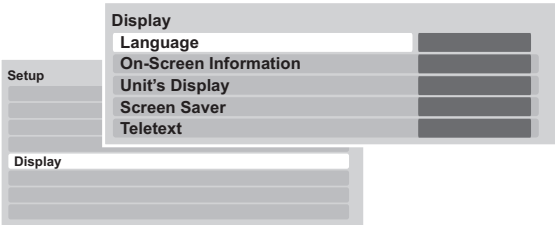
Mis-sync between the video and audio is corrected by delaying the audio output.

Audio for HG / HX / HE / HL / HM Recording

If the programme has multi channel audio, priority is given to what you select.

- This setting will give effect in the following cases.
 - File Conversion (⇒ 46)

Display



■ Language

Select the language for on-screen menus.

■ On-Screen Information

Select the approximate time until the channel information screen (⇒ 25) disappears automatically.

■ Unit's Display

Changes the brightness of the unit's display.

- If "Dim" is selected the display turns dark during play and disappears when the unit is turned off. It reappears momentarily if a button is pressed. While using this mode, the standby power consumption can be reduced.

■ Screen Saver

This is to prevent burn-in on the screen.

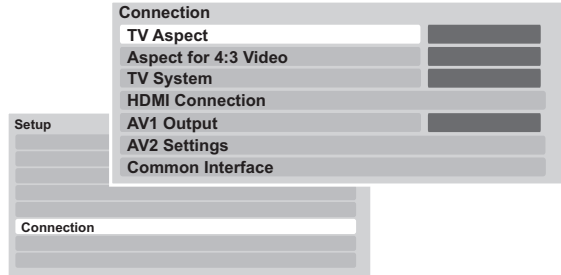
- If "On" is selected, the masked-off area on the screen becomes grey.

Depending on the condition of the unit (Connection, Setting) the masked-off area on the screen becomes grey.

■ Teletext

Select the Teletext (⇒ 25) display mode.

Connection



■ TV Aspect

Set to match the type of TV connected.

● Pan & Scan

Side picture is trimmed for 16:9 picture.

The pictures may be shown in the letterbox style depending on the content.



● Letterbox

Black bands appear for 16:9 picture.



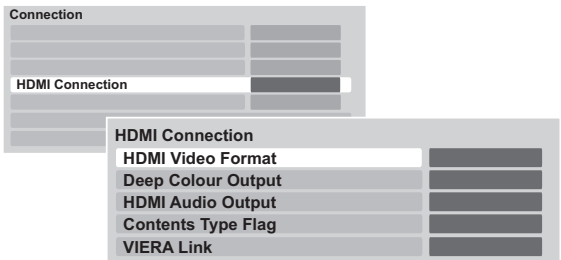
■ Aspect for 4:3 Video

To play a 4:3 title, set how to show pictures on a 16:9 widescreen TV.

■ TV System

Set in accordance with the TV System for the connected TV.

■ HDMI Connection



➤ HDMI Video Format

You can only select items compatible with the connected equipment.

- If "Automatic" is selected, the output resolution best suited to the connected TV (1080p, 1080i, 720p or 576p/480p) is automatically selected.
- To enjoy High Quality Video up-converted to 1080p, you need to connect the unit directly to 1080p compatible HDTV. If this unit is connected to an HDTV through other equipment, it must also be 1080p compatible.

➤ Deep Colour Output

This setting is for selecting whether to use Deep Colour output when a TV that supports Deep Colour is connected.

➤ HDMI Audio Output

Select "Off" when connected to a TV with an HDMI cable, and connected to an amplifier not compatible with HDMI with a DIGITAL AUDIO OUT terminal.

➤ Contents Type Flag

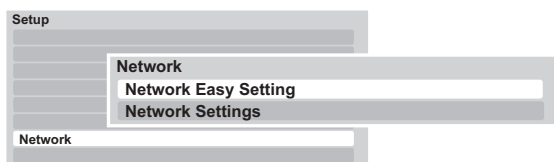
Depending on the playback content, the TV will output adjusting to the optimal method when a TV that supports Contents Type Flag is connected.

➤ VIERA Link

Set to use "HDAVI Control" function when connected with an HDMI cable to a device that supports "HDAVI Control".

- Select "Off" when you do not want to use "HDAVI Control".

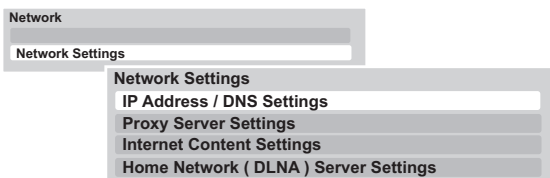
Network



■ Network Easy Setting

Press [OK] to start Network Easy Setting. (⇒ 21)

■ Network Settings



➤ IP Address / DNS Settings

Check the connection of the network or set the IP address and DNS.

- Press [OK] to show the respective setting.



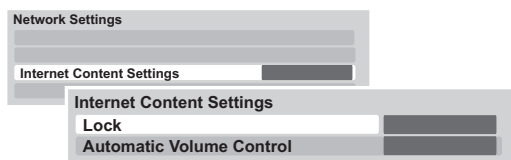
- "Connection Speed Setting" is enabled only when "Connection Speed Auto-configure" is turned "Off".

➤ Proxy Server Settings

Check and set the connection to the Proxy server.

- Press [OK] to show the respective setting.

➤ Internet Content Settings



➤ Lock

You can restrict using VIERA CAST.

- Follow the on-screen instructions.
- PIN is required to change. (⇒ 78)

➤ Automatic Volume Control

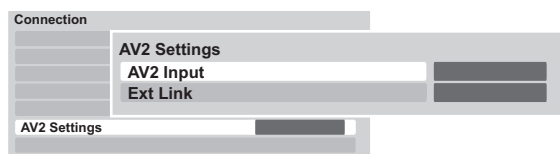
Volume that is different depending on the contents is adjusted automatically to the standard volume while using the VIERA CAST.

- Depending on contents, this function will not work.
- Select "Off" when the audio is warped.

■ AV1 Output

Set according to the terminal of the connected TV.

■ AV2 Settings



➤ AV2 Input

Set according to the output from the external equipment.

➤ Ext Link

Set "Ext Link 1" when a Set Top Box which transmits a control signal via the 21-pin Scart cable is connected.

- This setting cannot be made when "TV System" is set to "NTSC" (⇒ 84).

■ Common Interface

Access to software contained on CI module. (⇒ 12)

- Select "Slot 1:" or "Slot 2:" and press [OK].

Follow the on-screen instructions.

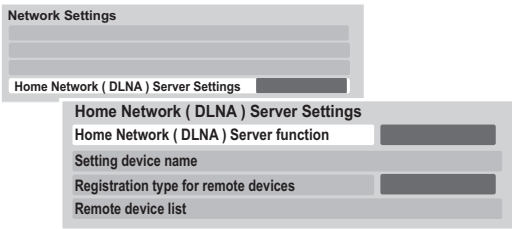


- On-screen instructions may not correspond to the remote control buttons.
- For more information about TV service, please contact your service provider.
- Depending on the card, in some cases its use together with this unit may be limited or not possible.

Changing the unit's settings

➤ Home Network (DLNA) Server Settings

You can set the DLNA (Server) function (⇒ 74)



➤ Home Network (DLNA) Server function

You can switch between enable/disable of the DLNA (Server) function.

- If “On” is selected, “Power Save in Standby” is fixed to “Off”. (⇒ right)

➤ Setting device name

It is also possible to change the name of this unit on the network.

- **Select from a preset list**
Select the preset name, then press [OK].
- **Create name**
Enter the name. (⇒ 70, Entering text)

➤ Registration type for remote devices

Automatic	All connected devices on the same network can access this unit.
Manual	Only registered devices can access this unit.

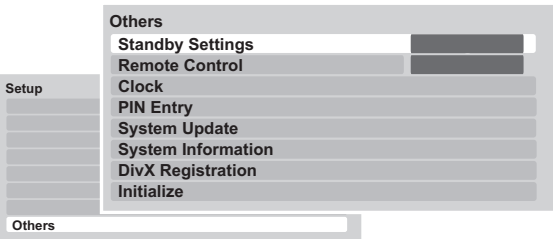
➤ Remote device list

- This function cannot be enabled when “Manual” is selected in “Registration type for remote devices”. (⇒ above)
- **To register equipment manually**
 - 1 Select the device name or the MAC Address for the device you want to register, then press [OK].
 - 2 Select “Yes”, then press [OK].
- **To deregister equipment**
 - 1 Select the registered equipment, then press [OK].
 - 2 Select “Yes”, then press [OK].

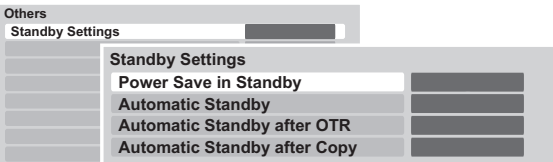


- The maximum number of equipment that can be registered is 16.

Others



■ Standby Settings



➤ Power Save in Standby

On	It will go into the “Power Save in Standby” mode.
On Timer	“Power Save in Standby” is activated when the set time comes. <ul style="list-style-type: none">● If the clock has not been set, “Power Save in Standby” is activated at all hours.
Off	It is possible to start quickly from the standby mode. (Quick Start mode)

- This function cannot be enabled when the DLNA function is enabled in “Home Network (DLNA) Server Settings”. (⇒ left)

➤ Automatic Standby

Set the time to turn the unit to standby mode automatically.
After the unit has finished operating, the unit will be turned to standby mode once the set time has passed.

- When “REWIND LIVE TV” is set to “On” (⇒ 81), “Off” cannot be selected.

➤ Automatic Standby after OTR

If "On" is selected, this unit is turned to standby mode when it is not operated for approximately 5 minutes after completing "Automatic Stop" or "Recording Time" (⇒ 28).

➤ Automatic Standby after Copy

If "On" is selected, this unit is turned to standby mode when it is not operated for approximately 5 minutes after completing copy (⇒ 50, Copying to HDD with DIRECT NAVIGATOR, Copying titles with copying list).

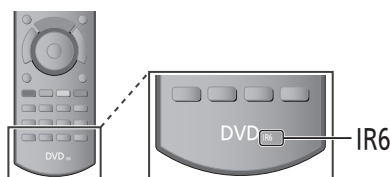
■ Remote Control

Change the remote control code on the main unit and the remote control if you place other Panasonic products close together.

- Use "DVD 1", the factory set code, under normal circumstances.

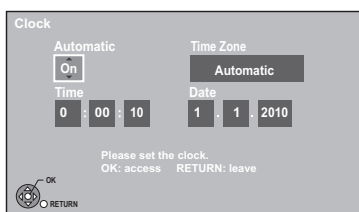
- ① Select the code, then press [OK].
- ② While pressing [OK], press and hold the number button ([1] to [6]) for more than 5 seconds.
- ③ Press and hold [OK] for more than 5 seconds.
- ④ Press [OK].

- Operation is possible only with Panasonic remote controls with "IR6" printed at the bottom when the remote control code of this unit is set to "DVD 4", "DVD 5" or "DVD 6".



■ Clock

If the time is not set correctly, use the settings listed in the method below.



● Automatic

This unit usually obtains time and date information from digital broadcasts.

But, if the time is not set correctly, set it to "Off" and perform "Manual setting".

● Time Zone

When the time is not correct, set "Time Zone".
(GMT -6 to + 6)

● Manual setting

- ① Select "Off" of "Automatic", then press [OK].
- ② Select the item you want to change.
- ③ Change the setting.
- ④ Press [OK] when you have finished the settings.



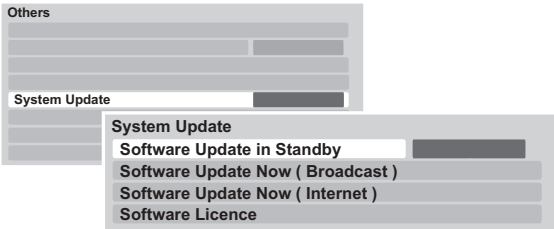
- When the clock is set manually, you cannot perform playing/recording/PAUSE LIVE TV/REWIND LIVE TV of the programmes that are copy protected (Copying is prohibited). (⇒ 13)

■ PIN Entry

You can set/change the PIN. (⇒ 78)

Changing the unit's settings

■ System Update



➤ Software Update in Standby

When you set this unit to standby mode, software (firmware) updates (⇒ 89) are downloaded automatically at the time you have specified.

➤ Software Update Now (Broadcast)

Software of this unit will be updated from broadcasts if update information is detected. (⇒ 89)

➤ Software Update Now (Internet)

Software of this unit will be updated from Internet if update information is detected. (⇒ 89)

➤ Software Licence

Information about the software licence is displayed.

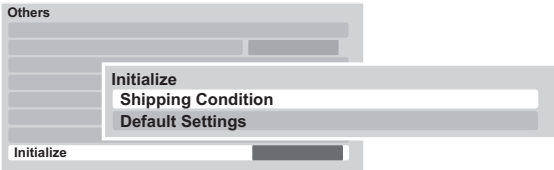
■ System Information

Display software (firmware) and HDAVI Control version of this unit.

■ DivX Registration

You need this registration code to purchase and play DivX Video-on-Demand (VOD) content (⇒ 99).

■ Initialize



➤ Shipping Condition

All the settings except for basic settings return to the factory preset. The timer recording programmes are also cancelled.

➤ Default Settings

All the settings other than the tuning settings, clock settings, disc language settings, rating PIN, remote control code, network settings etc. return to the factory presets.

Language code list

Enter the code with the number buttons.

Abkhazian:	6566	Gujarati:	7185	Rhaeto-Romance:	
Afar:	6565	Hausa:	7265	Romanian:	8277
Afrikaans:	6570	Hebrew:	7387	Russian:	8285
Albanian:	8381	Hindi:	7273	Samoan:	8377
Amharic:	6577	Hungarian:	7285	Sanskrit:	8365
Arabic:	6582	Icelandic:	7383	Scots Gaelic:	7168
Armenian:	7289	Indonesian:	7378	Serbian:	8382
Assamese:	6583	Interlingua:	7365	Serbo-Croatian:	8372
Aymara:	6589	Irish:	7165	Shona:	8378
Azerbaijani:	6590	Italian:	7384	Sindhi:	8368
Bashkir:	6665	Japanese:	7465	Singhalese:	8373
Basque:	6985	Javanese:	7487	Slovak:	8375
Bengali, Bangla:		Kannada:	7578	Slovenian:	8376
	6678	Kashmiri:	7583	Somali:	8379
Bhutani:	6890	Kazakh:	7575	Spanish:	6983
Bihari:	6672	Kirghiz:	7589	Sundanese:	8385
Breton:	6682	Korean:	7579	Swahili:	8387
Bulgarian:	6671	Kurdish:	7585	Swedish:	8386
Burmese:	7789	Laotian:	7679	Tagalog:	8476
Byelorussian:	6669	Latin:	7665	Tajik:	8471
Cambodian:	7577	Latvian, Lettish:	7686	Tamil:	8465
Catalan:	6765	Lingala:	7678	Tatar:	8484
Chinese:	9072	Lithuanian:	7684	Telugu:	8469
Corsican:	6779	Macedonian:	7775	Thai:	8472
Croatian:	7282	Malagasy:	7771	Tibetan:	6679
Czech:	6783	Malay:	7783	Tigrinya:	8473
Danish:	6865	Malayalam:	7776	Tonga:	8479
Dutch:	7876	Maltese:	7784	Turkish:	8482
English:	6978	Maori:	7773	Turkmen:	8475
Esperanto:	6979	Marathi:	7782	Twi:	8487
Estonian:	6984	Moldavian:	7779	Ukrainian:	8575
Faroese:	7079	Mongolian:	7778	Urdu:	8582
Fiji:	7074	Nauru:	7865	Uzbek:	8590
Finnish:	7073	Nepali:	7869	Vietnamese:	8673
French:	7082	Norwegian:	7879	Volapük:	8679
Frisian:	7089	Oriya:	7982	Welsh:	6789
Galician:	7176	Pashto, Pushto:	8083	Wolof:	8779
Georgian:	7565	Persian:	7065	Xhosa:	8872
German:	6869	Polish:	8076	Yiddish:	7473
Greek:	6976	Portuguese:	8084	Yoruba:	8979
Greenlandic:	7576	Punjabi:	8065	Zulu:	9085
Guarani:	7178	Quechua:	8185		

Software (Firmware) Update

You cannot operate the unit until the update is complete. Removing the AC mains lead while the update is in progress may damage the unit. Don't remove the AC mains lead during the update.

Update software (firmware) of this unit

Software of this unit can be updated automatically by the following methods at the specified time.
(Default setting is 3 a.m. ⇒ 88, Software Update in Standby)

- From broadcasts
- From Internet*

● To update the Software (Firmware) immediately, use the following function:

– Software Update Now (Broadcast) (⇒ 88)

Software of this unit will be updated from broadcasts if update information is detected.

– Software Update Now (Internet)* (⇒ 88)

Software of this unit will be updated from Internet if update information is detected.

* Network connection and setting are required. (⇒ 16, 21)

■ The unit's display during the update

e.g.,



- When "FINISH" is displayed, update of the software (firmware) has completed.



- It may take up to a few hours until the update is completed depending on the network or broadcast environment.
- If the timer recording is scheduled within the following time at the start of the download, the download will not be executed.
 - From broadcast: Within 4 hours
 - From Internet: Within 1 hour
- You can also download the latest software (firmware) from the following website and burn it to a CD-R to update the software (firmware).
<http://panasonic.jp/support/global/cs/>
- If you do not want to perform the software (firmware) update, set the "Software Update in Standby" to "Off". (⇒ 88)

CI Plus compatible CAM software (firmware) update

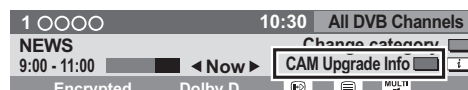
Software (firmware) of CAM (compatible CI Plus) can be updated automatically from broadcasts.

Availability of software (firmware) update is detected while viewing the programmes compatible with CI Plus.

1 When notification is displayed on the screen, select "Yes" and press [OK].

- If for some reason the notification is not displayed, or if cancelled, the notification is instead displayed on the Channel information (⇒ 25).

e.g.,



To execute CAM software upgrade, press the "Red" button.

2 Follow the instructions on the screen.

■ The unit's display during the update



- Do not remove the CAM from this unit while updating.
- CAM software (firmware) update notice is not displayed in the following cases:
 - When recording a programme
 - When timer recording and CAM update occur simultaneously
 - When displaying FUNCTION MENU, DIRECT NAVIGATOR, etc.
- Operations such as view, playback, or record cannot be performed while upgrading the CAM. Any buttons on the remote control or the unit cannot be used while upgrading the CAM.
- If the timer recording is started, CAM software upgrade is cancelled to start recording.
- For details, refer to your CAM's operating instructions or consult your dealer.

Other Settings

Switching the aspect ratio of the screen

When black bars are shown at the top, bottom, left, and right sides of the screen, you can enlarge the image to fill the screen.

- 1 Press [OPTION].
- 2 Select “Aspect”, then press [OK].
- 3 Select the item, then press [OK].

Normal	Normal output
Side cut	The black bars on the right and left sides of the 16:9 image disappear and the image is enlarged.
Zoom	The black bars on the top and bottom sides of the 4:3 image disappear and the image is enlarged.

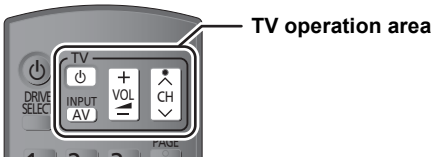



- It may also be adjusted using the screen mode of the TV etc.
- The screen mode is switched to “Normal” in the following situations:
 - when you change the channel
 - when you start or end the playback of a title
 - when the unit is turned off or on.
- **DVD-V** “Side cut” does not have any effect.
- When “TV Aspect” (⇒ 84) is set to “Pan & Scan” or “Letterbox”, the “Zoom” effect is disabled.

TV operation setting

The TV can be operated from the TV operation area of the remote control.

Perform the setting if you cannot operate the TV with the buttons in the TV operation area.



- 1 While pressing [TV , enter the code (⇒ right) with the number buttons.
- 2 Point the remote control at the TV
Test by turning on the TV and changing channels.
 - Repeat the procedure until you find the code that allows correct operation.
 - If the brand of your TV is not listed or the code number is invalid for the TV, this remote control is not compatible with your TV.



- If your TV brand has more than one code listed, select the one that allows correct operation.

Manufacturer and Code No.

Brand	Code	Brand	Code
Panasonic	01/02/03/04	NEC	36
AIWA	35	NOBLEX	33
AKAI	27/30	NOKIA	25/26/27/60/61
BEKO	05/71/72/73/74	NORDMENDE	10
BENQ	58/59	OLEVIA	45
BRANDT	10/15	ONWA	30/39/70
BUSH	05	ORION	05
CENTREX	66	PEONY	49/69
CURTIS	05	PHILCO	41/48/64
DAEWOO	64/65	PHILIPS	05/06/46
DESMET	05	PHONOLA	05
DUAL	05	PIONEER	37/38
ELEMIS	05	PROVIEW	52
FERGUSON	10/34	PYE	05
FINLUX	61	RADIOLA	05
FISHER	21	SABA	10
FUJITSU	53	SALORA	26
FUNAI	63/67	SAMSUNG	32/42/43/65/68
GOLDSTAR	05/50/51	SANSUI	05
GOODMANS	05	SANYO	21/54/55/56
GRADIENTE	36	SCHNEIDER	05/29/30
GRUNDIG	09	SEG	05/69/75/76/77/78
HITACHI	05/22/23/40/41	SELECO	05/25
IRRADIO	30	SHARP	18
ITT	25	SIEMENS	09
JVC	17/30/39/70	SINUDYNE	05
KDS	52	SONY	08
KOLIN	45	TCL	31/33/66/67/69
KONKA	62	TELEFUNKEN	10/11/12/13/14
LG	05/50/51	TEVION	52
LOEWE	07/46	THOMSON	10/15/44
MAG	52	TOSHIBA	16/57
METZ	05/28/79	WHITE	05
MITSUBISHI	05/19/20/47	WESTINGHOUSE	
MIVAR	24	YAMAHA	18/41

Messages on the unit's display

The following messages or service numbers appear on the unit's display when something unusual is detected during startup and use.

DVD □ (“□” stands for a number.)	The remote control and main unit are using different codes. Change the code on the remote control. (⇒ 87)
CAM-UP	CAM is being updated. (⇒ 89)
GUIDE	TV Guide data is being downloaded. (⇒ 26)
FINISH	The software (firmware) update is complete. (⇒ 89)
HARD ERR	If there is no change after turning the unit on and off, consult the dealer where the unit was purchased.
NoERAS	You cannot delete items on this disc. The disc may be damaged. Use a new disc.
NoREAD	<ul style="list-style-type: none"> •The disc is dirty or badly scratched. The unit cannot record, play, or edit. (⇒ 9) •This message may appear when the lens cleaner has finished cleaning. Press [▲ OPEN/CLOSE] on the main unit to eject the disc. (⇒ 18)
NoWRIT	You cannot write to this disc. The disc may be damaged. Use a new disc.
PLEASE WAIT	<ul style="list-style-type: none"> •Displayed when the unit is started and turned off. •There was a power failure or the AC plug was disconnected while the unit was on. The unit is carrying out its recovery process. This process restores the unit to normal operation. The unit is not broken. Wait until the message disappears.
PROG FULL	There are already 64 timer programmes. Delete unnecessary timer programmes. (⇒ 35)
REMOVE	The USB device is drawing too much power. Remove the USB device.
START	Update of the software (firmware) is started. You cannot operate the unit until the update is complete. (⇒ 89)
SW-DL	Software (firmware) is downloading. Download will stop when the unit is turned on, or the timer recording starts. (⇒ 89)
UNSUPPORT	You have inserted a disc the unit cannot play or record on. (⇒ 6) You tried to operate with a non-compatible USB memory.
UPD □/□ (“□” stands for a number.)	The software (firmware) is being updated. You cannot operate the unit until the update is complete. (⇒ 89)

U59	The unit is hot. The unit switches to standby for safety reasons. Wait for about 30 minutes until the message disappears. Select a position with good ventilation when installing the unit. Do not block the cooling fan on the rear of the unit.
U61	(When a disc is not inserted) Displays when a malfunction has occurred. This is displayed when the unit is in the recovery process to return to normal operation. Once the display clears you can use the unit again. If it remains displayed, consult the dealer where the unit was purchased.
U76	HDMI cannot be output because it is connected to a model that does not support copyright protection.
U77	Due to the current disc not having authorised copyright information, video output is not performed.
U88	(When a disc is inserted) Displays when there was something unusual detected with the disc while recording, playback or copy. This is displayed when the unit is in the recovery process to return to normal operation. Once the display clears you can use the unit again. If it remains displayed, consult the dealer where the unit was purchased.
U99	The unit fails to operate properly. Press [⏻/I] on the main unit to switch the unit to standby mode. Now press [⏻/I] on the main unit again to turn the unit on.
H□□ or F□□ (“□” stands for a number.)	<ul style="list-style-type: none"> •There is something unusual. (The service number displayed after H and F depends on the unit's condition.) •Check the unit using the troubleshooting guide. (⇒ 92) If the service number does not disappear, do the following. <ol style="list-style-type: none"> 1. Disconnect the plug from the household mains socket, wait a few seconds, then reconnect it. 2. Press [⏻/I] to turn the power on. (The unit may be fixed.) <p>If the service number does not disappear despite after doing the above, request service from the dealer. Inform the dealer of the service number when requesting service.</p>
X HOLD	The HOLD function is activated. Press and hold [OK] and [RETURN ↵] at the same time until “X HOLD” disappears. (⇒ 18)

Troubleshooting guide

Before requesting service, make the following checks. If the problem still persists, consult your dealer for instructions.

Updating to the latest software (firmware) may solve the problem. (⇒ 89)

The followings do not indicate a problem with this unit:

- Regular disc rotating sounds or louder rotating sounds when recording or high speed copying.
- Poor reception due to atmospheric conditions.
- Image disturbance during search.
- Interruptions in reception due to periodic broadcasting breaks.
- When the unit is turned on or off, there may be an unexpected sound. This does not indicate a problem with this unit.

■ The unit doesn't work.

One of the unit's safety devices may have been activated.

Reset the unit as follows:

- ① Press [⏻/I] on the main unit to switch the unit to standby.
 - If the unit doesn't switch to standby, press [⏻/I] on the main unit for about 3 seconds. The unit is forcibly switched to standby. Alternatively, disconnect the AC mains lead, wait one minute, then reconnect it.
- ② Press [⏻/I] on the main unit to switch it on. If the unit still cannot be operated, consult the dealer.

■ Cannot eject a disc.

The unit may have a problem.

- ① While the unit is off, press and hold [OK], the yellow button and the blue button on the remote control at the same time for more than 5 seconds.
 - “00 RET” is displayed on the unit's display.
- ② Repeatedly press [▶] (right) on the remote control or [⏻/I] on the main unit until “06 FTO” is displayed on the unit's display.
- ③ Press [OK] on the remote control or [▲ OPEN/CLOSE] on the main unit.

Power

The unit is turned off automatically.

- If you connected this unit to a “HDAVI Control” compatible TV with an HDMI cable, or connected this unit to a Q Link-compatible TV with a fully wired 21-pin Scart cable, this unit will be automatically set to standby mode when the TV is set to standby mode.

The unit does not turn on when pressing [⏻].

- Linked timer recordings with external equipment is in recording standby (“EXT-L” on the unit's display blinks when [⏻] is pressed). Press [EXT LINK] to cancel the recording standby.

Displays

The display is dim.

- Change “Unit's Display”. (⇒ 84)

“0:00” is flashing on the unit's display.

- Set the clock. (⇒ 87)

The time recorded on the disc and the available time shown do not add up.

- **DVD-R +R** If you record or edit about 200 times or more, the remaining capacity of the disc is reduced and then recording or editing may be disabled (for the second layer on DVD-R DL and +R DL, this happens after about 60 times).
- Available disc space display may be different from actual. Varying may be large especially when recorded in DR mode.

The clock does not display on the unit when switched to standby.

- The clock does not display when “Power Save in Standby” is activated. Ensure “Power Save in Standby” is set to “Off”. (⇒ 86)

TV screen and video

Screen size is wrong.

- Check the "TV Aspect" or "Aspect for 4:3 Video". (⇒ 84)
- Adjust the aspect ratio setting on TV. Refer to your TV's operating instructions.
- If the 16:9 aspect ratio image is output to a 4:3 TV and the image will be stretched vertically, set "TV Aspect" to 4:3. (⇒ 84)
- Check "Aspect for Recording" before recording or file conversion. (⇒ 81)
- If you connect to 4:3 TV, set "HDMI Video Format" to "576p/480p". (⇒ 84)

Pictures do not appear with the HD quality although HD setting was made.

- The pictures are output with 576p/480p depending on the programme.

The screen changes automatically.

- If there is no operation for 5 minutes or more, the displayed screen switches to the other states automatically (only when the "Screen Saver" is set to "On"). (⇒ 84)

There is a lot of image lag when playing video.

- Set "HD optimizer" in the Picture menu to "Off". (⇒ 77)
- Set "Audio Delay". (⇒ 83)

The images from this unit do not appear on the TV. The picture is distorted during play, or video will not play correctly.

- Check the connection and the TV's input settings.
- An incorrect resolution is selected in "HDMI Video Format". Reset the setting as follows:
 - ① While the unit is on, press and hold [OK], the yellow button and the blue button on the remote control at the same time for more than 5 seconds.
– "00 RET" is displayed on the unit's display.
 - ② Repeatedly press [▶] (right) on the remote control or [⏮/⏭] on the main unit until "04 PRG" is displayed on the unit's display.
 - ③ Press and hold [OK] on the remote control or [▲ OPEN/CLOSE] on the main unit for at least 3 seconds.
Set the item again. (⇒ 84)
– When Dolby Digital Plus is not output in bitstream, select "Yes" in "Default Settings" and make proper settings. (⇒ 88)

- The unit's "TV System" setting differs from the TV system used by the disc now playing. While stopped, keep pressing [■] (STOP) and [▲ OPEN/CLOSE] on the main unit for 5 or more seconds. The system switches from PAL to NTSC or vice versa. (⇒ 84)
- Picture may not be seen when more than 4 devices are connected with HDMI cables.
Reduce the number of connected devices.
- The picture may be distorted or a black screen may appear between scenes recorded with different aspect ratios.
- DVD-R DL and +R DL discs have two writable layers on one side. Video and audio may momentarily cut out when the unit is switching layers.
- Set "Deep Colour Output" (⇒ 85) or "Contents Type Flag" (⇒ 85) to "Off".

Sound

No sound.

Distorted sound.

- Check the connections or amplifier's settings. (⇒ 14, 17)
- Press [AUDIO] to select the audio. (⇒ 25, 42)
- To output audio from a device connected with an HDMI cable, set "HDMI Audio Output" to "On". (⇒ 85)

Cannot switch audio.

- You cannot switch the audio if "Digital Audio Output" is set to "Bitstream" (⇒ 83)

Operation

The remote control doesn't work.

- The remote control and main unit are using different codes. Change the code on the remote control.



Unit's display

Press and hold [OK] and the indicated number button at the same time for more than 5 seconds. (⇒ 87)

- Software (firmware) is updating when "UPD □/□" is displaying on the unit's display. Wait until the update is completed. (⇒ 89)
- The HOLD function is activated. (⇒ 18)

The unit is on but cannot be operated.

- Drive has not been selected properly.

Cannot tune channels.

- Check the connections.

Startup is slow.

- Startup takes time in the following situations:
 - A disc is inserted.
 - The clock is not set.
 - Immediately after a power failure or the AC mains lead is connected.
 - When the unit is connected with an HDMI cable.
 - When the "Power Save in Standby" is activated. (⇒ 86)

Recording, timer recording and copying

Cannot record.

Cannot copy.

- Some broadcasts are copyright protected.
- You cannot record to the disc by pressing the [REC ●] or timer recording.
- The disc is protected with "DVD Management" or "Cartridge-protection". (⇒ 8, 68)
- Some programmes on digital broadcast channels are copy-restricted and the number of times you can copy in DR, HG, HX, HE, HL, HM mode is assigned by the broadcaster.
- **DVD-R DVD-RW +R +RW** Since it will copy to HDD temporarily, copying is not possible if there is insufficient available capacity on the HDD. Delete unnecessary titles on the HDD. (⇒ 43)
- You cannot copy on finalised discs.
- **DVD-R DVD-RW +R +RW** Copying or editing may not be possible on these discs after ejecting and loading the disc or turning the unit on/off for approximately 30 times after being copied to.
- Discs recorded on equipment other than this unit may not be able to be recorded to.
- This unit cannot record/copy NTSC signals to discs that already have PAL signal recordings. Play of discs recorded with both PAL and NTSC on another unit is not guaranteed.

Cannot record from external equipment.

- Check that the connection and input channel is correct. (⇒ 15)

Timer recording does not work properly.

- Refer to "Notes on timer recording". (⇒ 34)

A part or whole of a recorded title has been lost.

- If there is a power failure or the AC mains lead is disconnected from the household mains socket while recording or editing, the title may be lost or the HDD/disc may become unusable. We cannot offer any guarantee regarding lost programmes or discs.

An unusually loud sound is coming from the rotating disc.


- If you want copy to perform more quietly, select "Normal (Silent)" in "DVD Speed for High Speed Copy". (⇒ 81)

Encrypted titles cannot be decrypted.

- Depending on the encrypted service, it may not be possible to decrypt certain content.

Play

Cannot playback.

- The disc is dirty, scratched or marked. (⇒ 9)
- You tried to play a +RW that needs to have a Top Menu on the equipment used for recording.
- You cannot playback while executing the "Flexible Recording via AV input".
- The disc that is recorded by using other equipment and not finalised may not be able to playback.
- When the  icon is turned grey on the DIRECT NAVIGATOR screen, the playable period has ended and the title is copy protected (Copying is prohibited). (⇒ 13, 38)
- Depending on the encrypted service, it may not be possible to play back certain titles if they have been recorded without being decrypted.

Audio and video momentarily pause.

- (DVD-R DL and +R DL only) When playing a title recorded on both layers, the unit automatically switches between layers and plays the title in the same way as a normal programme. However, video and audio may momentarily cut out when the unit is switching layers.

DVD-Video is not played.

- You have set a ratings level. (⇒ 80, DVD-Video Parental Control)
- Ensure the disc is for the correct DVD-Video region number, and is not defective.

You have forgotten your rating PIN. You want to cancel the rating level.

- Refer to "To reset the rating level settings". (⇒ 97)

Image for the Quick View is not smooth.

- Image may not be played back smoothly in case of DR, HG, HX, HE, HL, HM mode titles or AVCHD format titles.
- This function does not work when recording is in XP or FR mode.

The resume play function does not work.

- Memorized positions are cancelled when
 - open the disc tray.
 - **CD SD USB** turn off the unit.
 - (**HDD** will not be cancelled)

Cannot play the disc on other players.

- **DVD-R DVD-RW +R +RW** The disc must be finalised or have a Top Menu created after recording or copying (⇒ 69).
- **DVD-R** The disc created in AVCHD format can only be played back on AVCHD compatible equipment.

Edit

The available recording time doesn't increase even after deleting titles on the disc.

- **DVD-R +R** Available space on the disc does not increase even after deleting titles.
- **DVD-RW +RW** Available space on the disc increases when you delete the last title.

Cannot edit.

- You may not be able to edit on the HDD if there is no available space.
Delete any unwanted titles to create empty space. (⇒ 43)

Cannot create a playlist.

- Creation or editing of playlists cannot be done on this unit.

Photo

The contents of the SD card cannot be read.

- Remove the card from the slot and then insert again. If this does not solve the problem, turn off and turn on the unit again.

Copying, deleting and setting protection takes a long time.

- When there are a lot of folders and files, it may sometimes take a few hours.

Photos do not playback normally.

- The images that were edited on the PC, such as PROGRESSIVE JPEG, etc., may not play back. (⇒ 103)

Music

Tracks could not be copied to the HDD.

- If there are copyright protected tracks such as SCMS restrictions, they will not be copied.
- Recording from CDs that do not conform to CD-DA specifications (copy control CDs, etc.) cannot be guaranteed.

USB

This unit does not recognize the USB connection correctly.

- If inserted during playback the USB device may not be recognized by this unit. Disconnect and reconnect the USB device. If it still does not recognize the connection, turn this unit off and on again.
- USB devices connected using a USB hub may not be recognized by this unit.

TV Guide

The TV Guide System does not receive any data.

- If signal quality is bad (ghost images or limited reception), the TV Guide system may not be able to receive any data.

The empty field is displayed for some or all channels.

- Some channels are not supported by the TV Guide system.

The TV Guide information is not displayed properly.

- Set the clock correctly. (⇒ 87)
- There was a programme change, or TV Guide information from a broadcast station was possibly not correctly transmitted. Check the current programme, e.g. on the Web site for the TV Guide system provider or station provider.

The TV Guide data transfer was interrupted.

- The TV Guide system shows the data that was received up to the interruption.
- The programme information may be incomplete.

The TV Guide data is not updated.

- You cannot download TV Guide data during recording in the following cases.
 - “One cable” has been selected in “Easy Setting” or “Auto Setup”. (⇒ 20, 79)
 - “Single Cable” has been selected in “Antenna System” and one user band is disabled. (⇒ 23, 80)

Broadcast

Digital broadcasts cannot be received.

- The dish may not be pointing in the direction of the satellite. If problem persists consult your local TV aerial installer.
- To receive an encrypted broadcast, a CI module valid for the broadcast is required.
- When you use only one terminal, you may not view correctly if you connect the satellite cable to the LNB IN 2 terminal.
- When you use single cable router, additional settings are required. (⇒ 23)

Picture regularly breaks up on some channels.

- Adjust the aerial reception with "Manual Tuning". (⇒ 79)

Picture very infrequently breaks up on some or all channels.

- Electrical atmospheric interference caused by local or distant lightning storms or heavy rain with wind in "leafy" locations may cause pictures to break up and audio to mute or distort momentarily.
- The receiver (LNB) of the satellite dish must be suitable for digital reception.

VIERA Link

VIERA Link doesn't work.

- Some functions may not work depending on the version of "HDAVI Control" of the connected equipment. This unit supports "HDAVI Control 5" functions.
- If the connection for the equipment connected with HDMI was changed, or if there was a power failure or the plug was removed from the household mains socket, "HDAVI Control" may not work.
In this case, change TV (VIERA) setting for "HDAVI Control" again.

Network

You cannot access this unit from DLNA compatible equipment on the network.

- Check the network connection and the network settings. (⇒ 16, 21, 74, 75, 85)
- It may not be possible to connect depending on the types of the equipment or the status of the equipment.

To reset this unit

To return all the settings to the factory preset

- Perform "Shipping Condition" or "Default Settings". (⇒ 88)

To reset the rating level settings

- The rating level returns to the factory preset.
 - ① While the unit is on, press and hold [OK], the yellow button and the blue button on the remote control at the same time for more than 5 seconds.
– "00 RET" is displayed on the unit's display.
 - ② Repeatedly press [▶] (right) on the remote control or [⏻/I] on the main unit until "03 VL" is displayed on the unit's display.
 - ③ Press [OK] on the remote control or [▲ OPEN/CLOSE] on the main unit.
– "INIT" is displayed on the unit's display.

Unit care

■ Indemnity concerning recorded content

Panasonic does not accept any responsibility for damages directly or indirectly due to any type of problems that result in loss of recording or edited content (data), and does not guarantee any content if recording or editing does not work properly. Likewise, the above also applies in a case where any type of repair is made to the unit (including any other non-HDD related component).

Cleaning

■ This unit

- Wipe with a soft, dry cloth.
- Never use alcohol, paint thinner or benzine to clean this unit.
- Before using chemically treated cloth, carefully read the instructions that came with the cloth.

■ This unit's lens

Use the **Lens cleaner** (not supplied) to clean the unit's lens.

Lens cleaner: RP-CL720AE

- This lens cleaner may not be available for sale in all countries, e.g. not available in Germany, please consult your Panasonic dealer for advice.

Setup precautions

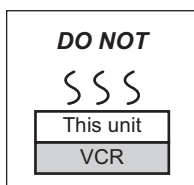
- **Place the unit on a surface that is flat and not subject to vibration or impact.**

- **Do not place on anything that generates heat like a VCR, etc.**

- **Place in an area where condensation does not occur.**
Conditions where condensation may occur

- When there is an extreme change in temperature (moving from a very hot location to a very cold location, or vice versa, or when subjected to an air conditioner or when cooled air directly impacts the unit).
- When there is high humidity or a lot of steam in the room.
- During the rainy season.

In the above situation, **without turning the unit on**, let the unit adjust to the room temperature and wait 2–3 hours until condensation is gone.



■ Cigarette smoke etc. causes malfunction or breakdown

The unit may breakdown if cigarette smoke or bug spray/vapour, etc. gets inside the unit.

When moving the unit

Before moving the unit, ensure the disc tray is empty.

- ① Turn the unit off. (Wait until "BYE" disappears from the display.)
- ② Remove the AC mains lead from the household mains socket.
- ③ Move only after the unit has come to a complete stop (approx. 3 minutes) in order to avoid subjecting to vibration and shock. (Even after turning the unit off, the HDD continues operating for a short time.)

HDD (Hard disk drive) handling care

The HDD is a high precision recording instrument and because of its long recording capability and high speed operation it is a very special device that is easily susceptible to damage.

As a basic rule, save important content to a disc as backup.

■ The HDD is a device that is not built to withstand vibration/shock or dust

Depending on the setup environment and handling of the HDD some content may become damaged and play and recording may no longer be possible. Especially during operation, do not subject the unit to any vibration, shock, or remove the AC mains lead from the household mains socket. In the event of a power failure during recording or play, the content may be damaged.

■ The HDD is a temporary storage device

The HDD is not an everlasting storage device for recorded content. Use the HDD as a temporary storage place for one-off viewing, editing, or copying. It is recommended to save the recorded content on a disc or to keep the original data or CDs that they were copied from.

■ Immediately save (backup) all content as soon as you feel there may be a problem with the HDD

If there is an irregularity within the HDD, repetitive strange sounds or problems with picture (block noise, etc.) may result. Using the HDD in this condition may worsen the problem and in the worst case the HDD may no longer be usable. As soon as you notice this type of problem, copy all content to disc and request service. Recorded content (data) on a HDD that has become unusable is unrecoverable.

Regarding DivX and MKV

ABOUT DIVX VIDEO:

DivX® is a digital video format created by DivX, Inc. This is an official DivX Certified® device that plays DivX video. Visit divx.com for more information and software tools to convert your files into DivX video.

ABOUT DIVX VIDEO-ON-DEMAND:

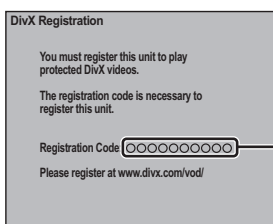
This DivX Certified® device must be registered in order to play purchased DivX Video-on-Demand (VOD) movies. To obtain your registration code, locate the DivX VOD section in your device setup menu. Go to vod.divx.com for more information on how to complete your registration.

DVD-R CD USB

- Video images of the copyright-protected DivX VOD contents stored on USB device can be output only through the HDMI output terminal.

■ Display the unit's registration code.

- 1 Press [FUNCTION MENU].
- 2 Select "Setup" in "Others", then press [OK].
- 3 Select "DivX Registration" in "Others", then press [OK].



DivX Registration screen before registration

10 alphanumeric characters

- After playing DivX VOD content for the first time, the registration code is not displayed.
- If you purchase DivX VOD content using a registration code different from this unit's code, you will not be able to play this content.

To cancel the unit's registration

Select "Yes" in "DivX Registration".

Use the deregistration code to cancel the registration in www.divx.com.

Regarding DivX VOD content that can only be played a set number of times

Some DivX VOD contents can only be played a set number of times. When you play this content, the number of times already played and initially playable number of times is displayed.

- The remaining number of plays decreases each time a programme is played. However, when playing from the point where play was previously stopped, the remaining number of plays does not decrease due to the resume play function.

Displaying subtitle text

You can display subtitle text on the DivX and MKV video disc on this unit.

This function has no relation to the subtitles specified in DivX and MKV standard specifications and has no clear standard. The operation might be different or it may not operate properly depending on the way the file was made or the state of this unit (playing, stopped, etc.).

Display with "Subtitles" in the Disc menu (⇒ 76).



- DivX and MKV video files that do not display "Text" do not contain subtitle text.
- If the subtitle text is not displayed correctly, try changing the language settings. (⇒ 80, Subtitle Text)
- You may not display subtitle text depending on a file.

■ Subtitles text file of DivX and MKV

- Subtitles text that satisfy the following conditions can be displayed on this unit.
 - File format: MicroDVD, SubRip, or TMPlayer
 - File extension (DivX):
".SRT", ".srt", ".SUB", ".sub", ".TXT" or ".txt"
 - File extension (MKV):
".SRT", ".srt", ".SSA", ".ssa", ".ASS" or ".ass"
- The DivX video file and subtitles text file are inside the same folder, and the file names are the same except for the file extensions.
- Depending on the methods used to create the file or the state of the recording, only parts of the subtitles may be displayed, or the subtitles may not be displayed at all.

Operations that can be performed simultaneously

➤ To simultaneously record/play two programmes which need the same CI module for decryption (⇒ 31)

Operations that can be performed while recording or copying a title

(○: Possible, -: Impossible)

	Playback of HDD	Playback of discs	Playback of SD Card	Playback of photo	Playback of music recorded on HDD
While recording programme	○※1	○※1, 2	○※1	-	○
While recording from external equipment	○※1	○※1, 2, 3	-	-	○
While copying in normal speed mode	-	-	-	-	-
While copying in high speed mode [With finalising or creating Top Menu (+RW)]	-	-	-	-	-
While copying in high speed mode [Without finalising or creating Top Menu (+RW)]	○	-	-	-	-

- ※1 Titles recorded in 1080/60p cannot playback.
- ※2 DivX and MKV video cannot playback.
- ※3 AVCHD format titles cannot playback.
- Simultaneous operation is not possible while executing the “Flexible Recording via AV input”.

Starting the timer recording while executing other operation

(○: Possible, -: Impossible)

Executing operation	Starting of the timer recording	Executing operation	Starting of the timer recording
Recording the title※1	○	Executing “Flexible Recording via AV input”※2	○
Playing the title	○	Executing PAUSE LIVE TV/REWIND LIVE TV※1	○
Editing the title	○	Editing photo or music	-
Copying a title in high speed mode [without finalising or creating Top Menu (+RW)]	○	Copying photos	-
Copying a title in high speed mode [with finalising or creating Top Menu (+RW)]	-	Copying music	-
Copying a title in normal speed mode	-	Formatting	-
Converting a title in “File Conversion” (Only when “Now” is selected)	-	Finalising/Creating Top Menu	-
Copying HD Video (AVCHD format)	-		

- ※1 The operation will terminate when simultaneous recording is being done and timer recording starts.
- ※2 Executing operation will be terminated.

Specifications

Specifications are subject to change without notice.

■ **General**

Dimensions (W×H×D):
430 mm×59 mm×238 mm
(excluding the projecting parts)
430 mm×59 mm×249 mm
(including the projecting parts)

Mass: Approx. 3.7 kg

Power supply: AC 220 to 240 V, 50 Hz

Power consumption: Approx. 58 W

“Power Save in Standby” is activated: Approx. 0.2 W

“Power Save in Standby” is not activated: Approx. 6.0 W

Operating temperature: 5 °C to 40 °C

Operating humidity range: 10 % to 80 % RH
(no condensation)

■ **TV system**

Tuner System: DVB-S/S2

Antenna receive frequency: 950 MHz to 2150 MHz

Input level: -65 dBm to -25 dBm

Input impedance: Nominal 75 Ω

Demodulation: QPSK, 8PSK

LNB input:
F shape terminal female, power supply 13 V/18 V
max. 400 mA

LNB output: Not provided

RF converter output: Not provided

DiSeqC: Version 1.0 or Tone burst A/B, 22 kHz 0.65 Vp-p

■ **Video**

Video system: PAL / NTSC / SECAM (IN)

Recording system: MPEG2 (Hybrid VBR)/
MPEG-4 AVC/H.264

Video in (PAL/NTSC): AV1/AV2 (21pin) 1 Vp-p (75 Ω)

S-Video in (PAL/NTSC): AV2 (21 pin) 1 Vp-p (75 Ω)

RGB in (PAL): AV2 (21 pin) 0.7 Vp-p (75 Ω)

Video out (PAL/NTSC): AV1/AV2 (21 pin), Video out (pin jack) 1 Vp-p (75 Ω)

S-Video out (PAL/NTSC): AV1 (21 pin) 1 Vp-p (75 Ω)

RGB out (PAL): AV1 (21 pin) 0.7 Vp-p (75 Ω)

■ **Audio**

Recording system:
Dolby Digital (2ch) (XP, SP, LP, EP mode)
Dolby Digital (Max 5.1ch) (DR, HG, HX, HE, HL, HM mode)

Dolby Digital Plus (Max 5.1ch) (DR mode)

MPEG (2ch) (DR mode)

Audio in: AV1/AV2 (21 pin)

Input level: Standard: 0.5 Vrms,
Full scale: 2.0 Vrms at 1 kHz

Input impedance: More than 10 kΩ

Audio out: AV1/AV2 (21 pin),
Audio output L/R (pin jack)

Output level: Standard: 0.5 Vrms,
Full scale: 2.0 Vrms at 1 kHz

Output impedance: Less than 1 kΩ

Digital audio out:
Optical terminal (PCM, Dolby Digital, DTS, MPEG)

HDMI terminal (PCM, Dolby Digital, DTS, MPEG, Dolby Digital Plus)

■ **HDMI Output**

19 pin type A: 1 pc

● This unit supports “HDAVI Control 5” function.

■ **Other terminals**

USB Port Type A: 1 pc

SD Card Slot 1 pc

Common Interface slot ×2

Compliant with CENELEC EN 50221 : February, 1997.

LAN (Ethernet) Port 10BASE-T/100BASE-TX

■ **Internal HDD capacity**

320 GB

Specifications

Recordable discs

DVD-RAM: 2X SPEED (Ver. 2.0),
2-3X SPEED (Ver. 2.1), 2-5X SPEED (Ver. 2.2)
DVD-R (SL): 1X SPEED (Ver. 2.0),
1-4X SPEED (Ver. 2.0),
1-8X SPEED (Ver. 2.0), 1-16X SPEED (Ver. 2.1)
DVD-R (DL): 2-4X SPEED (Ver. 3.0),
2-8X SPEED (Ver. 3.0)
DVD-RW: 1X SPEED (Ver. 1.1),
1-2X SPEED (Ver. 1.1),
2-4X SPEED (Ver. 1.2), 2-6X SPEED (Ver. 1.2)
+R (SL): 2.4X SPEED (Ver. 1.0),
2.4-4X SPEED (Ver. 1.1),
2.4-8X SPEED (Ver. 1.2), 2.4-16X SPEED (Ver. 1.3)
+R (DL): 2.4X SPEED (Ver. 1.0),
2.4-8X SPEED (Ver. 1.1)
+RW: 2.4X SPEED (Ver. 1.1),
2.4-4X SPEED (Ver. 1.2)

Optical pick-up

System with 1 lens, 2 integration units
662 nm wavelength for DVDs,
780 nm wavelength for CDs

LASER specification

Class 1 LASER Product
Wave length: 662 nm (DVDs)
780 nm (CDs)
Laser power:
No hazardous radiation is emitted with the safety protection

Recording system

DVD-RAM: DVD Video Recording format
DVD-R (SL/DL): DVD-Video format
DVD-RW: DVD-Video format
+R (SL/DL), +RW

Maximum writing speed of discs

DVD-RAM: Up to 5x Speed
DVD-R: Up to 12x Speed
DVD-R DL: Up to 4x Speed
DVD-RW: Up to 4x Speed
+R: Up to 8x Speed
+R DL: Up to 4x Speed
+RW: Up to 4x Speed
Maximum supporting speed of drive for each disc:
Refer to "Recordable discs" (⇒ above).

Region code

DVD: #2

Playable discs

DVD-RAM: DVD Video Recording format,
AVCHD format, JPEG
DVD-Video format*1,
DVD-R: DVD-Video Recording format*1,
AVCHD format*1, JPEG*2, MP3*2,
DivX*2,3, MKV*2,3
DVD-R DL: DVD-Video format*1,
DVD-Video Recording format*1,
AVCHD format*1, JPEG*2, MP3*2,
DivX*2,3, MKV*2,3
DVD-RW: DVD-Video format*1,
DVD Video Recording format*1, AVCHD format*1
+R: Video*1, AVCHD format*1
+R DL: Video*1, AVCHD format*1
+RW: Video*1, AVCHD format*1
DVD-Video: DVD-Video format
CD-Audio: CD-DA
CD-R/CD-RW: CD-DA, JPEG*2, MP3*2,
DivX*2, MKV*2

*1 Finalising is necessary.
*2 ISO9660 level 1 or 2 (except for extended formats),
Joliet
This unit is compatible with multi-session.
This unit is not compatible with packet writing.
*3 UDF1.02 without ISO9660, UDF1.5 with ISO9660

SD Card

Compatible media: SD Memory Card*1
Format: FAT12, FAT16, FAT32*2, exFAT*3
Data that can be played: JPEG,
AVCHD format, MPEG-2

*1 Includes SDHC, SDXC card.
Includes miniSD™ cards (need a miniSD™ adaptor).
Includes microSD™/microSDHC™/microSDXC™
cards (need a microSD™ adaptor).
*2 Not support long file name
*3 SDXC only

USB device

USB standard: USB 2.0 High Speed
Format: FAT12, FAT16, FAT32
Data that can be played: MP3, JPEG,
DivX, MKV

Audio information

The audio output differs depending on which terminals are connected to the amplifier/receiver, and the setting on this unit. (⇒ 83, Digital Audio Output)

- The number of channels listed is the maximum possible number of output channels when connected to amplifier/receiver compatible with the respective audio format.

Terminal	“Digital Audio Output”	
	“Bitstream”	“PCM”
HDMI AV OUT	Output using original audio	DVD-Video: 5.1ch PCM
DIGITAL AUDIO OUT	Dolby Digital/ DTS Digital Surround	Down-mixed 2ch PCM

Maximum numbers of titles that can be recorded

HDD	999 titles (When continuously recording for long durations, titles are automatically divided every 8 hours.)
DVD-RAM, DVD-R, DVD-RW	99 titles on one disc.
+R, +RW	49 titles on one disc.

About JPEG/MP3/DivX/ MKV/MPEG2/AVCHD files

■ JPEG

Playable media: HDD, DVD-RAM, DVD-R, DVD-R DL, CD-R, CD-RW, SD Card, USB device

Compatible pixels: Between 34×34 and 8192×8192 pixels
(Sub sampling is 4:2:2 or 4:2:0)

Files: JPEG conforming DCF
(Design rule for Camera File system)

Maximum numbers of folders and files:

Media	Maximum folders	Maximum files
HDD	500	20000
DVD-RAM	500	10000
DVD-R	500	10000
CD-R, CD-RW	500	10000
SD Card	500	10000
USB device	500	10000

- JPEG files must have the extension “.jpg” or “.JPG”.
- This unit is not compatible with MOTION JPEG or PROGRESSIVE JPEG.

■ MP3

Playable media: HDD, DVD-R, DVD-R DL, CD-R, CD-RW, USB device

Compression rate: 32 kbps to 320 kbps

Sampling rate: 16 kHz, 22.05 kHz, 24 kHz, 32 kHz, 44.1 kHz, 48 kHz

Maximum numbers of folders and files:

Media	Maximum folders	Maximum files
HDD	—	40000
DVD-R	300	3000
CD-R, CD-RW	300	3000
USB device	300	3000

- MP3 files must have the extension “.mp3” or “.MP3”.

Specifications

■ DivX

Playable media: DVD-R, DVD-R DL,
CD-R, CD-RW, USB device

Official DivX Certified® product
DivX Certified to play DivX video up to HD 1080p,
including premium content.
GMC (Global Motion Compensation) is not supported.

Maximum number of folders: 300 folders
(including the root folder)

Maximum number of files: 200 files

●Support version

Extension

Files must have the extension ".DIVX", ".divx", ".AVI" or ".avi".

Picture resolution

Up to 1920×1080 pixels

Video

- Number of stream: Up to 1
- Codec: DIV3, DIV4, DIVX, DV50, DIV6
- FPS (Frame Per Second): Up to 60 fps

Audio

- Number of stream: Up to 8
- Format: MP3, MPEG, Dolby Digital
- Multi channel: Dolby Digital is possible. MPEG multi is 2 ch conversion.

- DVD-R and DVD-R DL must conform to UDF 1.02 without ISO9660 and UDF 1.5 with ISO9660.

■ MKV

Playable media: DVD-R, DVD-R DL,
CD-R, CD-RW, USB device

MPEG-4 AVC (H.264) profile is up to High Profile,
Level 4.

AAC-LC, MP3, Dolby Digital audio, DTS and PCM can
be decoded.

Maximum number of folders: 300 folders
(including the root folder)

Maximum number of files: 200 files

- MKV files must have the extension ".MKV" or ".mkv".

■ SD-Video (Standard Definition)

Playable media: SD Card^{※1}, USB device^{※2}
Codec: MPEG2

File Format:

SD-Video format^{※3} used on Standard Definition
Camera (Panasonic and some other's)

- ※1 Video Recording conversion and transfer is possible
from SD card to HDD or DVD-RAM disc.
After Video Recording conversion and transfer to
HDD or DVD-RAM disc is completed, the playback
becomes possible.
- ※2 Video Recording conversion and transfer is possible
from USB device to HDD or DVD-RAM disc.
After Video Recording conversion and transfer to
HDD or DVD-RAM disc is completed, the playback
becomes possible.
- ※3 SD-Video Entertainment Video Profile

■ HD-Video (High Definition)

Playable media: SD Card, USB device[※]
Codec: MPEG-4 AVC/H.264
File Format: AVCHD format conforming

- ※ Video Recording conversion and transfer is possible
from USB device to HDD.
After Video Recording conversion and transfer to
HDD is completed, the playback becomes possible.

Recording modes and approximate recording times

Depending on the content being recorded, the recording time may become shorter than indicated.

■ DR mode

Recording Mode	HDD
	(320 GB)
DR (HD quality)	45 hours
DR (SD quality)	129 hours

● Recording time of DR mode may vary depending on bit rate of broadcasting:

- High Definition (HD) quality: estimated bit rate is 14 Mbps
- Standard Definition (SD) quality: estimated bit rate is 5 Mbps

● Regarding recording time remaining:

Remaining time in the DR mode is calculated with a bit rate of approx. 14 Mbps. But the bit rate differs depending on the broadcast, so the displayed remaining time might be different from the actual remaining time.

■ Other recording modes

Recording Mode	HDD	DVD-RAM		DVD-R, DVD-RW, +R, +RW (4.7 GB)	DVD-R DL, +R DL (8.5 GB)
	(320 GB)	Single-sided (4.7 GB)	Double-sided (9.4 GB)		
HG	48 hours	—	—	—	—
HX	73 hours	—	—	—	—
HE	110 hours	—	—	—	—
HL	147 hours	—	—	—	—
HM	214 hours	—	—	—	—
XP	66 hours	1 hour	2 hours	1 hour	1 hour 45 min.
SP	134 hours	2 hours	4 hours	2 hours	3 hours 35 min.
LP	269 hours	4 hours	8 hours	4 hours	7 hours 10 min.
EP (6 hours)*	404 hours	6 hours	12 hours	6 hours	10 hours 45 min.
EP (8 hours)	538 hours	8 hours	16 hours	8 hours	14 hours 20 min.

* When "Recording time in EP mode" is set to "6 hours" (⇒ 81)

● Regarding recording time remaining:

This unit records using a VBR (Variable bit rate) data compression system to vary recorded data segments to match video data segments which may cause differences in the displayed amount of time and space remaining for recording.

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- (3) the software developed by the Independent JPEG Group,
- (4) the software developed by the Freetype Project,
- (5) the software licensed under the GNU LESSER General Public License (LGPL) and/or,
- (6) open sourced software other than the software licensed under the LGPL,
- (7) Windows Media digital right management technology (WM-DRM) licensed by Microsoft Corporation or its affiliates.

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<http://www.gnu.org/licenses/old-licenses/lgpl-2.1.html>

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Contact Information
cdrequest@am-linux.jp

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Glossary

AVCHD

AVCHD is a new format (standard) for High Definition video cameras that can be used to record and play high-resolution HD images.

Bitstream

This is the digital form of multi-channel audio data (e.g., 5.1 channel) before it is decoded into its various channels.

CI (Common Interface)

Common Interface is a defined standard, to enable the addition of a CAM (Conditional Access Module) in a Digital TV/Recorder.

CI Plus

CI Plus is a technical specification that adds additional security and features to the proven DVB Common Interface Standard that will allow CI Plus compatible consumer electronics devices, such as Integrated Digital Televisions and Set Top Boxes, access to a wide range of Pay TV Services via a Plug-in CI Plus CAM wherever the CI Plus Technology is supported by the local Pay TV Provider.

CPRM (Content Protection for Recordable Media)

CPRM is technology used to protect broadcasts that are allowed to be recorded only once. Such broadcasts can be recorded only with CPRM compatible recorders and discs.

DLNA (Digital Living Network Alliance)

DLNA is a standard that makes DLNA Certified digital electronics easier and more convenient to use on a home network.

This unit works both as a server and a client: You can enjoy the video and photos saved on the HDD of this unit on DLNA (Client) compatible equipment connected via a network. Additionally, You can enjoy viewing video, photos and music saved on a DLNA Certified media server and Panasonic DLNA compatible recorders.

DiSEqC (Digital Satellite Equipment Control)

Digital Satellite Equipment Control is a control system for selecting several LNBs at one input.

Dolby Digital

This is a method of coding digital signals developed by Dolby Laboratories. Apart from stereo (2-channel) audio, these signals can also be multi-channel audio.

Dolby Digital Plus

Multi-channel audio and higher audio quality is made possible using Dolby Digital Plus.

Down-mixing

This is the process of remixing the multi-channel audio found on some discs into fewer channels.

DTS (Digital Theater Systems)

This surround system is used in many movie theatres. There is good separation between the channels, so realistic sound effects are possible.

Dynamic range

Dynamic range is the difference between the lowest level of sound that can be heard above the noise of the equipment and the highest level of sound before distortion occurs.

Dynamic range compression means reducing the gap between the loudest and softest sounds. This means you can listen at low volumes but still hear dialogue clearly.

Finalise

A process that makes play of a recorded CD-R, CD-RW, DVD-R, etc. possible on equipment that can play such media. You can finalise DVD-R, DVD-R DL, DVD-RW (DVD-Video format), +R, +R DL on this unit.

After finalising, the disc becomes play-only and you can no longer record or edit. However, finalised DVD-RW can be formatted for recording again.

Formatting

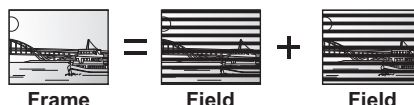
Formatting is the process of making media such as DVD-RAM recordable on recording equipment.

You can format DVD-RAM, DVD-RW (only as DVD-Video format), +RW, SD cards and the HDD or unused +R and +R DL on this unit.

Formatting permanently deletes all contents.

Frames and fields

Frames refer to the single images that constitute the video you see on your TV. Each frame consists of two fields.



- A frame still shows two fields, so there may be some blurring, but picture quality is generally better.
- A field still shows less picture information so it may be rougher, but there is no blurring.

HDMI (High-Definition Multimedia Interface)

Unlike conventional connections, it transmits uncompressed digital video and audio signals on a single cable. This unit supports high-definition video output [720p (750p), 1080i (1125i), 1080p (1125p)] from HDMI AV OUT terminals. To enjoy high-definition video a High Definition compatible TV is required.

JPEG (Joint Photographic Experts Group)

This is a system used for compressing/decoding colour still pictures. If you select JPEG as the storage system on digital cameras, etc., the data will be compressed to 1/10–1/100 of its original size. The benefit of JPEG is less deterioration in picture quality considering the degree of compression.

LNB (Low Noise Block - converter)

This is attached to the satellite dish, which will amplify the weak signal that was received, lower the frequency, and input into the tuner.

LPCM (Linear PCM)

These are uncompressed digital signals, similar to those found on CDs.

MPEG2 (Moving Picture Experts Group)

A standard for efficiently compressing and expanding colour video. MPEG2 is a compression standard used for DVD and satellite based digital broadcasting.

MPEG-4 AVC/H.264

A standard for efficiently compressing and expanding colour video. MPEG-4 AVC/H.264 is an encoding method used for recording of the High Definition video.

MP3 (MPEG Audio Layer 3)

An audio compression method that compresses audio to approximately one tenth of its size without any considerable loss of audio quality.

Pan&Scan/Letterbox

In general, DVD-Video are produced with the intention that they be viewed on a widescreen TV (16:9 aspect ratio), so images often don't fit regular (4:3 aspect ratio) TVs. Two styles of picture, "Pan & Scan" and "Letterbox", deal with this problem.

Pan & Scan: The sides are cut off so the picture fills the screen.



Letterbox: Black bands appear at the top and bottom of the picture so the picture itself appears in an aspect ratio of 16:9.



Progressive/Interlace

Interlace is a conventional image signal that displays the image in 2 phases by splitting the display into odd and even scans.

Progressive will display whole image in 1 scan. Therefore, it will give High Definition image without flickering compared with interlace.

Protection

You can prevent accidental deletion by setting writing protection or deletion protection.

Sampling frequency

Sampling is the process of converting the heights of sound wave (analog signal) samples taken at set periods into digits (digital encoding). Sampling frequency is the number of samples taken per second, so larger numbers mean more faithful reproduction of the original sound.

Signal Quality

This is the guide for checking the aerial direction. The numbered values displayed do not indicate the strength of the signal, but the quality of the signal (the signal to noise ratio, or "S/N"). The channels you can receive are affected by weather conditions, seasons, time (day/night), region, length of the cable that is connected to the aerial, etc.

Thumbnail

This refers to a miniature representation of a picture used to display multiple pictures in the form of a list.

Transponder

The signals of a broadcasting station are received by a transponder on a satellite. The transponder converts them to frequencies and sends them to satellite dishes near the ground. A transponder can broadcast several TV and radio programmes or data in parallel.

1080i

In one High Definition image, 1080 (1125) alternating scan lines pass every 1/50th of a second to create an interlace image. Because 1080i (1125i) more than doubles current TV broadcasts of 480i (525i), the detail is much clearer and creates a more realistic and rich image.

1080p

In one High Definition image, 1080 (1125) scan lines pass at the same time every 1/50th of a second to create a progressive image. Since progressive video does not alternate scan lines like interlace, there is a minimal amount of screen flicker.

720p

In one High Definition image, 720 (750) scan lines pass at the same time every 1/50th of a second to create a progressive image. Since progressive video does not alternate scan lines like interlace, there is a minimal amount of screen flicker.

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Information for Users on Collection and Disposal of Old Equipment and used Batteries



These symbols on the products, packaging, and/or accompanying documents mean that used electrical and electronic products and batteries should not be mixed with general household waste.

For proper treatment, recovery and recycling of old products and used batteries, please take them to applicable collection points, in accordance with your national legislation and the Directives 2002/96/EC and 2006/66/EC.

By disposing of these products and batteries correctly, you will help to save valuable resources and prevent any potential negative effects on human health and the environment which could otherwise arise from inappropriate waste handling.

For more information about collection and recycling of old products and batteries, please contact your local municipality, your waste disposal service or the point of sale where you purchased the items.

Penalties may be applicable for incorrect disposal of this waste, in accordance with national legislation.



For business users in the European Union

If you wish to discard electrical and electronic equipment, please contact your dealer or supplier for further information.

[Information on Disposal in other Countries outside the European Union]

These symbols are only valid in the European Union. If you wish to discard these items, please contact your local authorities or dealer and ask for the correct method of disposal.



Cd

Note for the battery symbol (bottom two symbol examples):

This symbol might be used in combination with a chemical symbol. In this case it complies with the requirement set by the Directive for the chemical involved.

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Pursuant to at the directive 2004/108/EC, article 9(2)

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